AFRICAN ELEPHANTS—CORAL REEFS

HEARING

BEFORE THE

SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE AND OCEANS

OF THE

COMMITTEE ON RESOURCES HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

FIRST SESSION

ON

H.R. 39

To reauthorize the African Elephant Conservation Act

AND

H. CON. RES. 8

Expressing the sense of Congress with respect to the significance of maintaining the health and stability of coral reef ecosystems

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REAUTHORIZE THE AFRICAN ELEPHANT CONSERVATION ACT, AND THE HEALTH AND STABILITY OF CORAL REEF ECOSYSTEMS

THURSDAY, MARCH 13, 1997

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE AND OCEANS, COMMITTEE ON RESOURCES,

Washington, DC.

The Subcommittee met, pursuant to call, at 10:05 a.m., in room 1334, Longworth House Office Building, Hon. John Peterson (Acting Chairman of the Subcommittee) presiding.

STATEMENT OF HON. JOHN PETERSON, A U.S. REPRESENTATIVE FROM PENNSYLVANIA

Mr. PETERSON. Good morning. The Subcommittee on Fisheries Conservation, Wildlife and Oceans will come to order. I am John Peterson, 5th District, Pennsylvania, sitting in this morning for Chairman Saxton who was unable to join us.

Today, the Subcommittee is meeting to hear testimony on two subjects, H.R. 39, the African Elephant Conservation Reauthorization Act, and H.Con.Res. 8, the Coral Reef Protection Resolution of 1997.

Under the committee rules, any oral opening statements at hearings are limited to the Chairman and the ranking minority member. This will allow us to hear from our witnesses sooner and help members keep to their schedules. Therefore, if other members have statements, they can be included in the hearing record under unanimous consent without objection.

I would like to start by explaining H.R. 39. The fundamental goal of H.R. 39 is to extend the authority of the Secretary of the Interior to allocate Federal money from the African Elephant Conservation Fund until September 30, 2002.

Furthermore, we will be hearing from our witnesses regarding the various grant projects that their organizations have sponsored to assist in the conservation of the African elephant, the results of these projects, and how additional funds authorized by H.R. 39 will be spent in the future.

The scope of this hearing will not include the issues of foreign aid or money provided to various African governments by the Agency for International Development.

This morning, we will also consider H.Con.Res. 8, the Coral Reef Protection Resolution of 1997. Mr. Saxton introduced this resolution, along with Mr. Abercrombie, in early January as a tribute to the designation of 1997 as the International Year of the Reef.

This resolution also expresses the congressional commitment to promoting stewardship of coral reef habitats; encouraging research and education about reef ecosystems; and improving the coordination of coral reef activities among Federal agencies, academic institutions, nongovernmental organizations, and industry.

I notice that we have several coral reef pictures on display on my left, your right, and I look forward to hearing from our witnesses. Before we begin, I would like to recognize the American Oceans Campaign, which provided the initiative to get this resolution underway. AOC continues to do fine work on issues of marine and coastal conservation, and the Subcommittee looks forward to further collaboration with them in the future.

I at this time would like to recognize the ranking minority member, but he has not arrived yet, and I will whenever he comes for any statement that he may have.

[The statements of Mr. Young and Mr. Farr follow:]

STATEMENT OF HON. DON YOUNG, A U.S. REPRESENTATIVE FROM ALASKA; AND CHAIRMAN, COMMITTEE ON RESOURCES

Mr. Chairman, as author of H.R. 39, I am pleased that you are holding this timely hearing on my legislation to reauthorize the African Elephant Conservation Fund.

For the past nine years, this Fund has been the only continuous source of new money for elephant conservation efforts. While the Act authorizes up to $5 million per year, in reality the Congress has annually appropriated less than $900,000 to save and conserve this flagship species of the African continent.

This money has been used to finance some 50 conservation projects in 17 range states throughout Africa. These projects have been sponsored by a diverse group of conservation organizations including the African Elephant Conservation Coordinating Group, Safari Club International, Southern Africa Wildlife Trust, and the World Wildlife Fund. These funds have been used to purchase anti-poaching equipment for wildlife rangers, to complete elephant population surveys and to move elephants from certain drought regions.

While the world community has been successful in stopping the widespread slaughter of this magnificent animal, the fight to save the African elephant is far from over. It is essential that we extend the Secretary of the Interior's authority to allocate money for the African elephant beyond its statutory deadline, and that is the goal of H.R. 39. In fact, my bill would reauthorize the African Elephant Conservation Fund until September 30, 2002.

This is a sound piece of legislation and this small investment will help to ensure that our largest land mammal, the African elephant, does not disappear from this planet.

Mr. Chairman, I compliment you for the swift action you took in introducing, along with Mr. Abercrombie, the Coral Reef Protection Resolution of 1997. This is timely recognition of the International Year of the Reef designation.

Needless to say, we have no coral reefs in the coastal waters of Alaska. Nevertheless, Alaskan waters do have the distinction of being the northernmost point in the Pacific which supports coral growth. A variety of corals live in the Gulf of Alaska, along the Aleutian chain, and in the Bering Sea.

Since H.Con.Res. 8 is entirely non-controversial, I expect that it will and should receive favorable consideration in both chambers of Congress.

STATEMENT OF HON. SAM FARR, A U.S. REPRESENTATIVE FROM CALIFORNIA

Today we're holding hearings on two issues that I think are great examples of how the American government is thinking in the right direction in terms of fostering stewardship of natural resources on a global scale, recognizing that as resources do not limit themselves within political boundaries, our approaches to wise management should be similarly wide ranging.

H. Con. Res. 8, the Coral Reef Protection Resolution of 1997 honors the decision of scientists, policy makers, natural resource managers, and coral reef advocates from around the world to designate 1997 the International Year of the Reef. Coral reefs are amazing natural resources, valuable not only for their astounding diver-

sity, habitat for commercially important species, vital importance to coastal tourism, coastal storm protection and just sheer beauty. They're also a valuable indicator for the health of our world's coastal oceans. Coral bleaching and reef degradation has pointed out to the world's scientists that our oceans are experiencing environmental stress from human activities such as tourism pressures, increased sediment and nutrient runoff from the land, pollutants from coastal development, destructive fishing techniques, commercial harvests, and vessel damage.

This resolution is an important step in acknowledging the importance of our world's reefs, promoting critical research and education about reef ecosystems, and encouraging partnerships between Federal agencies, industry, academic institutions and non-governmental organizations for their protection.

The African Elephant Conservation Reauthorization Act of 1997 is motivated by a similar concern for global natural resources. The Elephant Conservation Act of 1988 was enacted to provide protection for the declining populations of the threatened African Elephant. This legislation, and the subsequent CITES ban on all commercial trade in elephant products has led to a significant decrease in poaching, and stabilization and in some cases increases in elephant populations. To the extent that this legislation would continue to authorize funding for conservation projects, I am supportive of it.

I am, however, concerned that the activities of USAID have provided American taxpayer support for activities which lead to trophy-hunting and killing of African Elephants. While the USAID funding is not a direct concern of this legislation, I believe the subcommittee should consider the program in this hearing, and direct future attention to it, as it may be in opposition to what we are trying to achieve with H.R. 39, as well as counter to the wishes of the American people, 84% of whom, in a recent poll, stated that they were against elephant trophy hunting.

Mr. PETERSON. I will now introduce our first panel of witnesses. Our first witness is Congressman Duke Cunningham of California, who will be testifying on H.R. 39. The second witness is Congressman Peter Deutsch of Florida, who will testify on H.Con.Res. 8. Please try to limit your oral statements to five minutes if you can, but your entire statement will appear in the record. We will also allow you both to testify before we ask you questions. The Chairman now recognizes Mr. Cunningham.

STATEMENT OF HON. RANDY "DUKE" CUNNINGHAM, A U.S. REPRESENTATIVE FROM CALIFORNIA

Mr. CUNNINGHAM. Thank you, Mr. Chairman. Being an instructor-diver and an avid diver, I would like to work with Mr. Deutsch and see what he has got in his plan. I think one of the beauties that we have today is our reefs and barriers and the protection of them. They are being destroyed by pollution and the consequences that go along with it.

But I am here not to talk about reefs, Mr. Chairman, but about a different problem that we have. I would like to thank you and your committee for the opportunity to testify in support of the African Elephant Conservation Reauthorization Act, H.R. 39. This is the second comprehensive hearing this Subcommittee has had on the issue in the last two years, and it demonstrates our shared commitment to elephant conservation itself.

Most of us have seen the Nature series on television and know of the wanton slaughter of our elephants and wildlife abroad. It is uncontrolled, and poachers go in and destroy valuable assets that this earth has on a limited basis.

H.R. 39 would reauthorize the African Elephant Conservation Act through the year 2002. A continuation of this important program will preserve America's leadership in conservation and restoration of African elephant herds in their native habitat. The fu-

ture survival of the African elephant depends on America's leadership and our small but crucial amount of financial support.

Now, I am known as a fiscal conservative, and I disagree with most of the things that this body tries to fund outside the Federal Government, outside the Constitution itself. Why is this different? What area should this fall under?

Well, the AECA has been responsible for rescuing African elephants from a path of extinction. Foreign countries do not have the capability to save the elephants, due to economic reasons, due to lack of support within the country itself, hunger or poverty. People are driven in some cases to hunt elephants for economic reasons versus controlling the elephant population responsibly.

Drought, shrinking habitat, and expanding human populations had some part in the decline of the elephant population. But by the mid–1980's, rampant and efficient poaching of elephants for the world ivory trade was found most directly responsible for elephants' endangerment.

The funds collected and the funds generated by the AECA and other organizations will provide game wardens. It will provide security. It will provide water holes. It will provide better feed and habitat which an elephant takes about 500 acres to control.

I would imagine if we had tyrannosaurus rex still on the planet, people would want to preserve it because it is an endangered species. It is not. But the elephant is, and it is something that lives with us every day. And, Mr. Chairman, remember it is the emblem of the Republican party, and the least thing we can do is to save it.

The passage of the AECA reversed the downward trend of elephant population. A large part of the success of the AECA comes from the efficient African Elephant Conservation Fund administered by the U.S. Fish and Wildlife Service, which provided nearly $13 million during eight years to elephant conservation.

The focus on the conservation fund was originally on antipoaching efforts. However, in the last few years, the project has focused not only on antipoaching efforts, but elephant population research, efforts to mitigate elephant and human conflicts, which in our Nature Series I think we have all seen, investigations of the ivory trade so we can stop the poaching, cataloging of ivory stockpiles, and identifying new techniques for elephant management.

In summation, I would like to say, Mr. Chairman, the fund helps local villagers who often live in fear of elephants to coexist and benefit from long-term conservation of elephants. This is an important step. As rural farmers in Africa begin to accumulate economic gains brought by the wildlife around them, they will find it in their best interests to conserve that same wildlife. In the long run, this will reduce the high cost of conservation and save elephants from extinction.

And I think a tertiary problem that most people don't understand is that Africa has very, very limited funds. The money that is raised from different tribes and different agencies must go to provide high priority health care centers, for example in a nation where today a huge percentage of some populations are HIV infected.

This is why, Mr. Chairman, in this particular case, I am willing to forego the normal principle of not funding outside Constitutional issues. I think elephant conservation is important not just for America, but I think it is important for the world. Thank you, Mr. Chairman.

Mr. PETERSON. Thank you. Mr. Deutsch.

STATEMENT OF HON. PETER DEUTSCH, A U.S. REPRESENTATIVE FROM FLORIDA

Mr. DEUTSCH. Thank you, Mr. Chairman. I am not here to speak on elephants, but, obviously, I support the efforts of Mr. Cunningham and the Congress in general in that regards. I have a statement which I would be happy to submit for the record.

And really just to summarize, as the Member that represents the only living coral reef in the North American Hemisphere, the other reef in another state is represented by Mr. Abercrombie as the ranking member of this committee, I have a special sensitivity of the significance of coral reefs in terms of not just what they do for wildlife, but what they do for people as well.

The Florida Keys is a unique area that the economy and the environment truly are one. The largest industry in the Florida Keys is tourism. The reef itself in the Keys is one of the major sources of that tourism. And Congress as an institution has recognized the significance of the Florida Keys in many ways, but specifically 1990 with the designation of the National Marine Sanctuary.

I support the resolution. I am glad the Chairman of this Subcommittee is the original sponsor of it, in that on an international basis, this is the International Year of the Reef. And there is a real concern around the world that potentially up to 30 percent of the world's living coral reefs could be destroyed in the next decade.

I think anything that we are able to do to focus attention on this resource on a national basis and on an international basis is significant, and I urge support of the resolution.

[Statement of Mr. Deutsch follows:]

STATEMENT OF HON. PETER DEUTSCH, A U.S. REPRESENTATIVE FROM FLORIDA

Mr. Chairman, thank you for the opportunity to testify. As you know, my district includes the Florida Keys—home to North America's only living coral barrier reef. The Florida Keys is one of the few regions in the United States where coral reef ecosystem supports the economy of an entire county. In the Keys, tourism is the number one industry, and the reef is the number one attraction. The Keys' marine ecosystem also supports many traditional industries like commercial fishing which require a healthy and vigorous marine environment.

Congress recognized the significance of the Keys' coral reef when it designated the region as a National Marine Sanctuary in 1992. The designation will coordinate our efforts to preserve the reef for future generations and for the continued sustainability of the local economy. It also promotes the comprehensive stewardship, research and education which is called for by the resolution.

While we are taking major steps in the Keys, we have a long way to go in South Florida. Globally, 30 percent of the world's coral reefs may be lost in the next decade if serious steps are not taken to reverse their plight. During this—the "International Year of the Reef"—it's appropriate that Congress recognize the importance of the world's coral reef ecosystems. I commend the committee for considering this resolution, and I look forward to continuing our work together.

Mr. PETERSON. Thank you very much. Do we have any questions? I don't. Mr. Abercrombie.

Mr. ABERCROMBIE. Yes. For Mr. Cunningham——

Mr. CUNNINGHAM. Good morning.

Mr. ABERCROMBIE. Good morning and aloha to you. We have multiple sources of funding for the African elephant conservation efforts including grants from the United States.

I wonder if you have—because I don't have sufficient background—I have done some reading on different points of contention with respect to the CAMPFIRE program and the USAID program, that kind of thing. A question that occurred to me then is one about coordination between USAID and, say, the Department of Interior in terms of evaluation of the effectiveness of the programs.

Do you have a view on that or any information you could share with me? Because, as I say, mine is at this point abstract and intellectual; that is to say it is based on reading rather than on firsthand knowledge or much in the way of depth of inquiry.

Mr. CUNNINGHAM. I don't always agree with Fish and Wildlife. On the most part, I do. But in this particular problem, the original intent was to coordinate antipoaching efforts to save the elephant. Now they are expanding with all the organizations to take a look at other areas and other management techniques to preserve the elephants and to provide better habitat for them. I know Fish and Wildlife is primarily our point source to go out and take a look at what are the different things needed.

There was recently a picture—and I love the Nature Series—and it was an elephant running through a village with clotheslines on it and, unfortunately, dragging a child with it. And, you must find how you protect people, how you protect crops instead of the people going out and killing an elephant.

An elephant doesn't know the difference between a barbwire fence and a cornfield. How do you protect that? How do you save both the farmer and the elephant? Do you provide water for them in another area where they don't transport, or that they have enough food? All of these are coordinated. Could they be done better? Yes, I think they could, and that is part of the process.

This is only the second year we have taken a look at this. And as you go along, I think we are going to get better and better. And from all sides of the issue, I think we can work together and make sure that we have got a stable population.

Mr. ABERCROMBIE. Would it be in our interest to help support preserves? Traveling that I have done was almost 30 years ago now on my own in Africa, and I had the opportunity to be in Uganda before the collapse of the political and economic and social infrastructure there.

And I had occasion to come into close contact with African elephants outside the huts we were in. But that was under circumstances in which it was clearly game preserves. It was tourist oriented.

The infrastructure, if you will, was geared toward that, and it was large enough so that you didn't have at that time the encroachment of people desperate to save themselves literally—save their families, burning down trees and trying to expand their own grazing for cattle and for forage and, in some instances, just trying to get wood in order to sell it. Again, you may have more background on it than I do other than through reading.

Mr. CUNNINGHAM. Mr. Abercrombie, I would not want to start large-scale dollars going out of the United States for preserves. I know in many cases a lot of these are privately held, and they use them commercially and also as game reserves.

Mr. ABERCROMBIE. I see.

Mr. CUNNINGHAM. I would not want Federal funding for that. It is against my principles, and I think we spend too much money on foreign aid. But in this particular case, the money is leveraged by many organizations to provide these other things that you are talking about.

Mr. ABERCROMBIE. But my question really went toward whether you had some view on the question of whether the poaching side possibly was in hand where there were stable governments. And we had—I was taking from your testimony that we could move into other areas now where we could do thinning of herds, all that kind of thing.

Mr. CUNNINGHAM. Well, they are looking into other areas, and that is part of this whole process, for which I will be happy to give you my testimony. They have moved just from the poaching issue alone, so that it is somewhat controlled. But if you look at the rhino, especially the white rhino, you look at the elephant and you look at a lot of these different species, you find that we have limited resources. But there is still a big program out there for poachers.

I am a hunter, and I love to fish. I particularly don't shoot anything I don't eat, and that is just a limitation I have. But, I love to hunt, I love to fish, but I think we also need to preserve our heritage for our children and our grandchildren. They don't have the capability to do that.

But, yet, I know in deer herds here in the United States—an example, up in Oregon I have a friend where they prohibit hunting of the whitetail. Well, the whitetail is so sickly and depleted up there and from interbreeding, and they haven't allowed other deer to come in.

The same kind of things could happen to these other reserves if we don't get into the management and other methods to preserve and protect them. Once you get a smaller herd, then you get interbreeding, and then you get the same kind of problems and everything else.

Mr. ABERCROMBIE. Last question then. Can you give us a view on the point or toward the point of are there organizations where the governments are sufficiently stable? Are there organizations with which we can work effectively in terms of leveraging what dollars we do put forward in this?

Mr. CUNNINGHAM. There are several of them in the testimony, but I would think——

Mr. ABERCROMBIE. Do you feel those organizations are up to the mark, or are they having their own difficulties? For example, where the mountain gorilla is concerned, I understand that despite the best efforts of very dedicated people, it is extraordinarily difficult for the government agencies with the responsibility for dealing with it to adequately be able to patrol, to work, that kind of thing.

Mr. CUNNINGHAM. Is it a perfect world out there? No. And can we adequately do it? Are there other organizations? I think part of

this fund reaches out to the world and says, "Hey, we need help." We do need help in this, Mr. Abercrombie.

Mr. ABERCROMBIE. Thank you very much. Thank you, Mr. Chairman.

Mr. PETERSON. Mr. Gilchrest.

Mr. DEUTSCH. Mr. Chairman, excuse me for one second. I am in a markup for votes. If there aren't any questions for me——

Mr. GILCHREST. I am just going to make a quick statement. I think if we understand the nature—if we look at the tiny organism that makes up coral reefs and then we look at the mammoth beauty of an African elephant, we begin to understand the nature of the mechanics of creation, the mechanics that keep this planet living and breathing.

And I really do think it falls to the burden of we people, whether we are Americans or whether we are from some other part of the world—it is our responsibility to sit down at a table in a calm, very direct manner so that we can find the information, the knowledge, the sense of tolerance for each other's views to protect and preserve these magnificent things for ourselves and future generations. And I think we have really begun that process, and I thank both of you for coming this morning to testify.

Mr. ABERCROMBIE. I just want to thank Mr. Deutsch as well for his commentary, and we will work together.

Mr. CUNNINGHAM. If I could make a comment? I used to serve on this committee, Mr. Chairman, and it was one of the more fun committees to serve on because of its bipartisanship and going in the same directions. I will admit I used to fight a lot of the initiatives because I thought they were fought for by extremists.

But I have come to learn in many situations that we can work together. For example, the striper bass that I talked about with my colleague, Mr. Gilchrest—I would have opposed the conservation of the striper bass as a young person because I would want to fish for them. I didn't want you to stop me from fishing. I would have been wrong because I have seen those stocks come back, and today I can catch more stripers.

Yes, I had a waiting period. But today I can go out there in the Chesapeake and catch more stripers than if we would have continued at our present rate. We are not always right. We just try to achieve that direction.

Mr. GILCHREST. And, Duke, we hope you continue to enjoy our deer burgers, the whitetail deer burgers.

Mr. ABERCROMBIE. For Mr. Cunningham, now that we have you in the delayed gratification mood——

Mr. CUNNINGHAM. Yes, I do support a balanced budget.

Mr. ABERCROMBIE. I came in while you were testifying, and I apologize. Did you address the question of ivory trade in your remarks?

Mr. CUNNINGHAM. Part of the expanded research instead of just poaching is to categorize it. We have to know what we have in stocks, and also have investigations into the different markets outside the poachers themselves. Illegal ivory is like drugs. You have got to have people that buy the drugs.

You have got to have people that are dealing in ivory. We need to get down to the heart of it because you don't just save the ele-

phant and fight on one end. You have got to go all the way through the whole system and stop people from wantonly slaughtering these animals for their ivory.

Mr. ABERCROMBIE. OK. Thank you very much.

Mr. PETERSON. I would like to thank the witnesses and the Members for their questions. Now, we will introduce our second panel of witnesses. Mr. Terry Garcia, the Acting Assistant Secretary of the National Oceanic and Atmospheric Administration, and Mr. Marshall Jones, the Assistant Director of the International Affairs for the U.S. Fish and Wildlife Service. I would like to remind the witnesses that under our committee rules, they must limit their oral statements to five minutes, but that their entire statement will appear in the record. We will also allow you both to testify before we ask questions. At this time, I would like to recognize Mr. Garcia.

STATEMENT OF TERRY D. GARCIA, ACTING ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Mr. GARCIA. Good morning, Mr. Chairman, and members of the Subcommittee. It is a pleasure to be here to highlight the programs that NOAA has undertaken to address our nation's coral reef crisis, which was so eloquently described in House Concurrent Resolution 8.

NOAA is pleased to provide testimony in support of the Congress's leadership for, and commitment to, active stewardship of our Nation's fragile coral reef ecosystems. With the continued support of the Congress, NOAA and the rest of the Administration will work to address your concerns for the health and stability of our Nation's coral reef systems—systems that are in dire crisis.

I would like to touch on four points today: the current global and national coral reef crisis; what this means to the U.S.; what NOAA is doing to address the problem; and the identification of needs and gaps in our resource monitoring and management strategies.

Experts now estimate that over two-thirds of the world's reefs are dangerously stressed. It is estimated that 10 percent of the world's reefs are beyond recovery, while 30 percent are in critical condition with 10 to 20 years left to live if something is not done to save them.

Although coral reef and seagrass communities have adapted to deal with natural stresses such as predators, diseases, tropical storms, and some climate changes, human activities are now impacting reefs in many different ways, and the cumulative impact is destroying many reefs.

A solution is both simple and difficult. If coral reefs are to survive, we must reduce the magnitude and diversity of human impacts. The human impacts on reefs vary from reef to reef, region to region. In general, the most serious human causes of coral reef degradation are land-based sources of pollution and direct and indirect effects of fishing.

Other impacts such as ship groundings do serious damage. In the past two months, there have been three ship groundings on the coral reefs in the Florida Keys National Marine Sanctuary.

As was mentioned earlier, the economics of coastal areas affect the entire nation. More than one-half of the U.S. population lives in one of our Nation's 411 coastal counties, only 11 percent of America's land.

People depend on coastal resources like coral reefs for jobs, income, and a way of life. The contribution that healthy coral reef ecosystems can make to coastal and regional economies are significant.

For example, over 3 million tourists visit the Florida Keys, contributing $1.2 billion every year to the local economy through water-related activities such as fishing, diving, and boating. In 1991, visitors to the U.S. Virgin Islands spent over $700 million.

U.S. recreational divers alone spend at least 300 million in the Caribbean and Hawaii every year. Tourism in Hawaii generates over $9 billion in revenue annually, and some 3 million people visit just one of Hawaii's many coral reef sites every year.

Coral reef ecosystems are critical habitats for commercial and recreational fisheries worth millions of dollars to local and State economies. Coral reefs cover only .2 percent of the ocean floor or an area about the size of Texas, yet produce about one-tenth of the fish caught for human consumption and hold about one-quarter of all marine fish species. In the U.S., several hundred commercially harvested stocks depend on coral reefs for survival and reproduction.

Coral reef organisms produce promising leads in the search for anticancer compounds, antibiotics, pain suppressors, sun screens, and other products. These organisms potentially hold the secrets to numerous scientific and medical benefits.

NOAA has a key role in the stewardship of our nation's marine resources. Our programs are addressing the coral reef crisis, as well as fulfilling NOAA's environmental stewardship responsibilities as outlined in our strategic plan.

In fiscal 1996, NOAA spent approximately $26 million for activities addressing management and protection of coral reefs. It is also important to remember that many U.S. reefs are in State, territorial, and commonwealth waters, and the real work of coral reef management and protection must come from local and regional communities.

In response to the continued decline and destruction of coral reef ecosystems worldwide, the U.S. and eight other nations established the International Coral Reef Initiative in 1994. There are now 75 nations that have joined the coral reef initiative process.

NOAA has been an important contributor to the design and implementation of the U.S. Coral Reef Initiative. As I noted in fiscal 1996, NOAA spent $26 million on programs addressing the needs of coral reef ecosystems. Although no new funds have been appropriated for NOAA's participation, NOAA contributed over $1.2 million in fiscal 1996 base funds to support 42 new projects addressing priorities of the U.S. Coral Reef Initiative.

I would just leave you with a few key thoughts regarding the opportunities, as well as the gaps, in our resources. One, we must make the public aware of the value and loss of coral reefs and what we can all do to save them. We have given the committee copies of the NOAA Public Awareness Campaign materials.

Two, scientists and managers need the resources and technology to monitor the health of coral reef ecosystems; and ongoing support is needed for research and development on the restoration of coral reefs and their associated ecosystems. Finally, government and responsible parties need to proactively reduce threats from human sources such as sedimentation and poor water quality affecting U.S. reefs.

I see that my time is about up. Mr. Chairman, in conclusion, by the year 2005, NOAA envisions the nation's coast with more productive and diverse habitats for fish and wildlife, cleaner coastal waters for recreation and seafood production, and coastal communities with thriving, sustainable economies based on well-planned development and healthy coastal ecosystems.

NOAA's strategy to reach this objective of protecting and restoring coastal habitat, including coral reefs, involves three distinct roles for NOAA: providing greater understanding, designing and implementing management solutions, synthesizing and communicating information about problems and solutions to decisionmakers and the public.

As I noted, we have launched a public awareness campaign. It is a call for action to the American people and to our partners to help save coral reefs, the rainforests of the sea. A copy of one of the posters is to my left, which was donated by the renown marine artist, Robert Lynn Nelson. We have other materials which we are distributing to the public through a special telephone number and have left those materials with the committee. Thank you very much, Mr. Chairman. This concludes my testimony.

[Statement of Mr. Garcia may be found at end of hearing.]

Mr. PETERSON. Thank you very much. Mr. Jones.

STATEMENT OF MARSHALL P. JONES, ASSISTANT DIRECTOR FOR INTERNATIONAL AFFAIRS, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Mr. MARSHALL JONES. Thank you, Mr. Chairman. Let me start by noting that while the Fish and Wildlife Service does not have a large role in the conservation of coral reefs, it is an initiative that we also support. We do have coral reefs that are within the jurisdiction of some national wildlife refuges, and we will do what we can to be a partner with NOAA in their efforts on coral reefs.

Mr. Chairman, I very much appreciate the opportunity to talk to you about another natural resource that is very near and dear to the hearts of the American people, the African elephant, and to give you our unqualified support for H.R. 39, the African Elephant Conservation Reauthorization Act of 1997.

We believe that this is a very important step in the continued global efforts to conserve African elephants. Furthermore, Mr. Chairman, I am very delighted to be able to announce today that we have information available at the table about the first grants being issued under a companion piece of legislation which was adopted in 1994 modeled after the African Elephant Act. That is the Rhino and Tiger Conservation Act. And we are announcing today our first grants under that program.

African elephants, Mr. Chairman, have enormous importance to the American people. The Fish and Wildlife Service has received

more mail on African elephants in the past decade than we have received on any other species, and that includes spotted owls or timber wolves or all of the other domestic species which are also very important to Americans.

The African elephant is important for all of the reasons that I think Congressman Cunningham very succinctly and eloquently spelled out to you. They have artistic importance. They have cultural importance as a symbol of the wild world. They have enormous economic importance. Hides and ivory can be tremendously valuable, but that also can pose a tremendous problem for us.

They have enormous ecological importance. The elephant is a keystone species. Protecting elephants and their habitat can protect entire ecosystems. On the other hand, within those ecosystems, elephants also have the capability, perhaps second only to man, to destroy their own ecosystems, to modify them in ways that make them unsuitable for other species to live with them.

And, Mr. Chairman, I would note elephants have political significance as the symbol of one of our two major parties. Luckily, Mr. Chairman, conservation of elephants also, as Mr. Cunningham has said, has been very much a bipartisan issue.

The original African Elephant Act passed unanimously with support from a variety of Members of Congress, and it originated in this Subcommittee under its previous incarnation. And we appreciate very much the continued support which you have given to this program over the years.

Mr. Chairman, my written testimony outlines a number of the projects which we have undertaken under the grant provisions of the African Elephant Conservation Act. And it also outlines the fact that the Act has a unique double strategy, because it also provided a stick, a regulatory mechanism, for controlling the ivory trade, a mechanism which President Bush exercised in 1990 to impose a moratorium on import of ivory into the United States, an action which led the way to an international ban on the ivory trade later that year.

The ivory issue remains before us since several southern African countries now believe that the time has come for the ban to be relaxed so that they could reopen a very limited ivory trade. We have just received those proposals and are reviewing them now. We will be consulting with other agencies and with the public as we develop a U.S. position leading up to an international meeting, which will take place in Africa in June of this year, where the ivory trade will be discussed.

Mr. Chairman, the ivory issues are not easy ones, and it is fair to say that we remain very concerned about potential adverse impacts which could occur from reopening of the ivory trade. And, thus, we will be seeking wide consultations on that issue.

But that is all the more reason, Mr. Chairman, that we cannot be complacent today. We believe the African Elephant Conservation Act has made an enormous contribution to elephant conservation through the grant programs which are outlined in my written statement. But we believe that the continuation of those programs is essential.

At the time the international ivory ban was put in place in 1990, a number of donor countries made commitments that they would

provide assistance to African governments for elephant conservation. Today, the only country that I think has really fulfilled those pledges and still is living up to its commitments is the United States, thanks to the action of Congress in enacting the African Elephant Fund and in appropriating the funds that we use for the grant programs under it. We think that the continuation of those programs is more essential than ever today. Mr. Chairman, I would be happy to answer any questions you have.

[Statement of Mr. Jones may be found at end of hearing.]

Mr. PETERSON. I would like to thank both of the witnesses for their testimony, and the first question is for Mr. Jones. What type of conservation projects have been financed by your agency?

Mr. MARSHALL JONES. Mr. Chairman, initially, we funded antipoaching measures. The sense of Congress at the time the Elephant Act was originally enacted was that controlling poaching was the key to the survival of the elephant. And so we funded measures such as a program which is administered by the Southern African Wildlife Trust where we help to reward and recognize rangers who risk their lives to protect elephants from poaching.

Rangers who have been involved in firefights, rangers who have had AK–47's pointed in their direction are recognized by awards, pins, certificates that give them a sense that the world cares that they are risking their lives every day for elephant conservation.

In recent years, as the poaching situation in Africa has stabilized, we have been able to branch out, and we have supported projects that involved coordination of elephant surveys among different countries; projects like the support for development of the capability of rural villagers to help participate in the management of elephants.

We think that the flexibility that is built into the Elephant Act is one of the important strengths of it, and we hope that we will be able to continue a wide variety of projects like that in the future.

Mr. PETERSON. Is there money in ivory like there used to be? Is it still a pretty profitable business?

Mr. MARSHALL JONES. Mr. Chairman, the ivory trade in the United States virtually died in 1990 after the ivory ban, and there is no movement as far as I know within this country to reinstitute the ivory trade, nor do we have any evidence of any major illegal trade in the United States. It is legal to sell ivory which was already here, and some of that is still available. That is perfectly legal, but the demand is not there.

In European countries, I think the situation is similar. On the other hand, in Asia I think you would find countries where there still is a demand for ivory, and the potential for an illegal trade is always there. Shipments are intercepted almost on a weekly basis, leaving Africa bound for some country in Asia, so the problem is still there.

And, unfortunately, Mr. Chairman, we have noted in the last year or two that the poaching of elephants for the ivory trade may be on the rise again after the success of the initial ivory ban in 1990. So we don't think it is an area where we can ever relax our guard.

Mr. PETERSON. Thank you. Mr. Garcia, the Florida Keys have experienced three ship groundings over the past two months, including the Houston grounding which is the largest that the Keys have seen. Grounding damage to reefs is extremely extensive, virtually instantaneous, and highly noticeable. Can you provide us with more information on the extent of damage that these groundings have caused? Has your organization surveyed the damage? Are restoration efforts being planned?

Mr. GARCIA. Yes, sir. As you noted, the damage is significant. The coral reefs are fragile organisms. We have had the unfortunate circumstances of three groundings. Scientists from NOAA and from the State have been on the scene assessing the extent of the damage. We intend to take actions with respect to the responsible parties once the assessment process has been completed.

The assessment process is also examining various alternatives that are available to us for restoring the damage to the reefs. I don't have a figure for you as to the extent of the damage. It is, however, significant and when we have completed the assessment process, we will let the committee know of the true extent of the damage, as well as the restoration projects contemplated.

Mr. PETERSON. Thank you very much. Mr. Abercrombie.

Mr. ABERCROMBIE. Thank you. Mr. Jones, I am not quite sure—let me move from the closing of your remarks backwards. I am not sure what you mean when you say we have to be on our guard. Is that a generic statement? What does that mean, that we have to be on our guard?

Because if I look at the attachments that I have gotten from the Subcommittee staff, elephant populations are declining fairly rapidly compared to 1987 virtually everywhere except possibly South Africa. It says in the Sudan it may have gone up 4,000. That may be inadvertent, not due to any programs, because of the civil war there.

Zaire I see cut more than in half and with the chaos that is going on there, it may be—I am not sure how the count was even done. So what do you mean by we have to be on our guard? Do we have international customs agents or something of that nature? I don't think so.

Mr. MARSHALL JONES. Mr. Chairman, CITES, the international ban on the ivory trade was enacted under the Convention on International Trade and Endangered Species, the international convention that now has over 130 party countries.

Those countries are pledged to uphold the ivory ban other than a few countries in southern Africa that under the terms of the treaty took a legal reservation. There is an international effort among all of the countries that support the ivory ban to intercept ivory, to stop the cycle that leads to the poaching of elephants.

Mr. ABERCROMBIE. What does that effort constitute? Is it done through customs at ports of embarkation or at ports of entry?

Mr. MARSHALL JONES. Both. In the United States, it is——

Mr. ABERCROMBIE. Who is the principal importer of illegal ivory in Asia?

Mr. MARSHALL JONES. Mr. Chairman, I don't think I can point to one country and say that this country is the principal importer.

Mr. ABERCROMBIE. Can you point to more than one?

Mr. MARSHALL JONES. There are a number of countries for which illegal shipments have been intercepted by those countries. Let me give you an example. Taiwan. Taiwan——

Mr. ABERCROMBIE. Excuse me, Mr. Jones. I am not interested in what is working. I am interested in where it doesn't work. If the trade is going on, it must be getting through. Do you have information as to what countries illegal ivory is going through?

Mr. MARSHALL JONES. Mr. Chairman, most of the information we have is about shipments that are intercepted. We could see what information we could provide to you about—I think what you are getting at is where ivory may be still being sold in the marketplace, where the governments——

Mr. ABERCROMBIE. OK. What countries is it being sold in?

Mr. MARSHALL JONES. Sir, I don't have that information. What we have is information about the countries that are working hard to enforce the ivory ban. Clearly, someone must think they can sell it because there is still some ivory moving in trade.

Mr. ABERCROMBIE. OK. What are the principal countries where the most ivory has been intercepted in Asia?

Mr. MARSHALL JONES. Countries where ivory has been intercepted include Japan, include Taiwan, include China, include countries in Southeast Asia. I can't give you an answer today about which countries——

Mr. ABERCROMBIE. So it is a general problem in Asia?

Mr. MARSHALL JONES. It is a problem. It is a problem that is there.

Mr. ABERCROMBIE. In the conservation fund—so, in other words, in Japan and China and elsewhere in Asia, there is a sufficient market for people to try and break the law, the international convention, and ship ivory in. Is that correct?

Mr. MARSHALL JONES. There is at least someone thinks that there is a market there. Sir, I can't tell you today how many consumers are buying it.

Mr. ABERCROMBIE. I understand that but that is where the problem is. Somebody thinks there is a market there. Right?

Mr. MARSHALL JONES. That is correct.

Mr. ABERCROMBIE. OK. With that involved here, we have an authorization for up to $5 million for the African Elephant Conservation Fund, but the Administration request that I see here in '97 is for $600,000. Is that correct?

Mr. MARSHALL JONES. No. It is for—the appropriation in '97 was for $1 million.

Mr. ABERCROMBIE. That is the appropriation, but the request was $600,000?

Mr. MARSHALL JONES. '97, yes, sir. It was $600,000. The Administration request for 1998 is $1 million.

Mr. ABERCROMBIE. Is $1 million, a match that was there before?

Mr. MARSHALL JONES. That is correct.

Mr. ABERCROMBIE. Why not the full five?

Mr. MARSHALL JONES. Sir, we receive grant proposals that could total significantly more than the funding we receive.

Mr. ABERCROMBIE. Are you leveraging that money?

Mr. MARSHALL JONES. Yes, sir.

Mr. ABERCROMBIE. Can you give us—could you give to the Chairman how that money is being leveraged, what the $1 million turns into in terms of your relationship with granting agencies?

Mr. MARSHALL JONES. Yes.

Mr. ABERCROMBIE. And what programs that it is associated with?

Mr. MARSHALL JONES. It has turned into more than $2 million, and we can provide you with the exact figure.

Mr. ABERCROMBIE. Now, for the Rhinoceros and Tiger Conservation Fund, the authorization is $10 million up to the year 2000. Right?

Mr. MARSHALL JONES. That is correct.

Mr. ABERCROMBIE. The Administration request for '98 is $400,000?

Mr. MARSHALL JONES. That is correct.

Mr. ABERCROMBIE. Is that because you do not have sufficient program information available to you to make it more than that?

Mr. MARSHALL JONES. No, sir. It is because in the broad scale of priorities, that was the amount that we felt we could make a difference with and yet stay within the President's overall deficit reduction targets.

Mr. ABERCROMBIE. Well, can I ask Mr. Garcia then from the five minutes there? There were two five-minute programs. Right?

Mr. PETERSON. We will do another second round, can we?

Mr. ABERCROMBIE. Oh, all right. Thank you.

Mr. PETERSON. OK.

Mr. ABERCROMBIE. Well, I will have some other questions for you, Mr. Jones, that I will try to submit unless we have a second round. Thank you.

Mr. PETERSON. Mr. Gilchrest.

Mr. GILCHREST. Thank you, Mr. Chairman. I will start with Mr. Jones and hopefully work over to the elephants. The coral reefs—when a ship crashes into a coral reef like the incident that just occurred, can that coral reef repair itself and over what period of time can it as a result of the damage?

Mr. GARCIA. Well, first of all, it often takes hundreds of years for a coral reef to grow a few centimeters. NOAA scientists, however, in the Florida Keys have experimented with coral grafts and other techniques for restoring reef structures that have been destroyed through ship strike or other impacts that were human induced so that there are ways of accelerating the regrowth or restoration of a coral reef. But once the damage is done, it is very difficult to undo it. When a reef is struck as it was earlier this year by a 600-foot freighter, a reef can withstand many insults, but——

Mr. GILCHREST. If someone asked you, and maybe they have, when that incident happened, could you have told somebody, whether it was the Coast Guard, the international shipping community, what you would like to see in order to avoid that?

Mr. GARCIA. Well, the ship was off course by many miles. The Congressionally-designated area to be avoided (ATBA) was clearly designated on all the nautical charts. We don't know why that ship strayed into this area.

Mr. GILCHREST. There was no suspicion that there might be drugs on board, that they want to pull a little closer to the shore and drop it overboard and have some little Cigarette boat come out

and pick it up? Was there any indication or did anybody check into that?

Mr. GARCIA. I have no knowledge of that. This was a container ship carrying cargo. Most of the cargo, which makes this an even more concerning incident, consisted of hazardous chemicals, highly toxic to reef organisms, as well as humans. Fortunately, nothing spilled.

Mr. GILCHREST. Under these circumstances, part of the responsibility of the Coast Guard, for example, is charging to enforce international fishing arrangements and so on. And your organization is charged with the responsibility of coming up with a program to protect ecosystems like the coral reefs. Do you ever communicate with the Navy about these kinds of issues, or was there anybody from NOAA that sat down and talked to the Navy or the Coast Guard, I mean, on this particular incident?

Mr. GARCIA. We work very closely with the Coast Guard. Part of NOAA's responsibility is to join the response team when there is an incident to assist them in evaluating the damage. We have a continuing responsibility, as I noted earlier, to assess the damage and then, as part of our damage assessment program, if it is appropriate, to commence a legal action to recover sufficient damages in order to restore the injury.

Mr. GILCHREST. A few years ago—well, you mentioned medical uses for coral reefs. And a few years ago, I understand that there was some use of coral reefs to replace human bone marrow. Is that research still being conducted? Does that have any impact on the extent of coral reefs as a result of this research?

Mr. GARCIA. The research is still underway. Sea Grant, along with the National Institutes of Cancer, have funded the research. It is not impacting the reefs in a negative way. What we are attempting to do is determine what are the many uses that we have yet to discover of these reefs and to protect them so that those uses will be available to us in the future.

Mr. GILCHREST. If you had some kind of a magic wand, what would your ideal program be to not only protect but to restore the world's coral reefs, and how long would that take and the approximate amount of money within 10 cents?

Mr. GARCIA. How about within a few million? I mention in my testimony that NOAA has been spending approximately $26 million a year on programs that are related to reef health and reef ecosystems. Obviously, we could always use more money. We felt that this was an appropriate number within our budget. The types of projects that we need to address I also noted. They include monitoring, research, and understanding the reasons behind the reef decline.

Mr. GILCHREST. Could you give me two examples of where there is dramatic coral reef decline and what has caused that?

Mr. GARCIA. There are a number of reasons; in the Florida Keys, human-induced causes such as nonpoint source pollution that has impacted the reefs.

Mr. GILCHREST. This nonpoint source pollution—is it from agriculture? Is it from development? What——

Mr. GARCIA. All of the above.

Mr. GILCHREST. All of the above.

Mr. GARCIA. All of the above—pollution washing into the south Florida Bay impacts the reef. Fishing practices both direct and indirect impact the reefs. By overfishing and taking out species that the reefs are dependent upon—species that feed on algae which if unchecked covers and then smothers the reef—we are impacting reefs.

Indirect effects such as cyanide fishing—and I would note that Congressman Miller has introduced a resolution to ban cyanide fishing. This is used to stun fish for the aquarium trade. The cyanide poisons the reefs and is a very destructive practice. I want to recognize your leadership in taking on this issue because it is a significant impact. The other impact is ship strikes.

Mr. GILCHREST. Thank you. Thank you, Mr. Chairman.

Mr. PETERSON. Mr. Miller.

Mr. MILLER. Thank you and thank you for your comments, Mr. Garcia. Let me just follow along to what was—the discussion you just had. In the resolution that I introduced, it outlines the number of what I would almost call intentional actions that are taken against the reefs for different reasons, for different motivations, and what have you, but you knowingly are doing this.

To what extent do we continue to experience that in reefs in U.S. waters, if you will, or proximity to the U.S.? I mean, cyanide fishing is one where I think there is an awareness now that the cyanide clearly has a detrimental impact. But what other intentional actions do we suffer?

Mr. GARCIA. In addition to the ones that I noted such as ship strikes, in some cases we are loving the reefs to death. The more human contact, the greater the impact. Boating, diving, people who inadvertently touch reefs or break off parts of reefs are damaging those reefs. They are killing them.

Part of the program that NOAA is proposing as a component of our stewardship role is to educate the public, the users of these resources, in order to help them understand the impact that their activity is having on the reefs and how to avoid the adverse impacts and consequences of those activities.

Mr. MILLER. Now, in Florida when you dive on some of the Keys—I have been out there with some of your people, and there is sort of a long educational process you go through before they will let you in the water at least until you feel comfortable that you maybe should be in the water—but there is, obviously, a lot of people who are out there just by themselves for recreational purposes or they are part of—they have paid some money I guess to dive to services and what have you. What kind of coordination are we developing with those various entities in terms of education?

Mr. GARCIA. It is very active, and I would commend the dive community for their efforts. The dive community throughout the country and Florida and Hawaii understand the importance of these resources. Obviously, if the reef does not exist, then their business will not exist. So they have worked with us closely in educating the public.

Through our sanctuary program we are getting out materials to the public. We have sanctuary representatives on the water who work with users of the sanctuary resources to help them understand how they can use those resources without impairing them.

Mr. MILLER. If we can go back to the cyanide fishing, is that becoming more extensive, staying the same, or——

Mr. GARCIA. I don't know that I could quantify that for you. It is a problem. It is a problem in the Pacific. One of the things that we have done through the coral reef initiative is to work with the territories and commonwealth to educate their users on the impacts of cyanide fishing and to find alternatives to this destructive practice.

Mr. MILLER. What kind of response are you getting?

Mr. GARCIA. It has been very good. The local representatives have come forward. They have worked with us. They are crafting projects with our assistance that we think will help respond to this problem.

Mr. MILLER. Are we correct in assuming, you know, a number of—what many of us are discovering about various environmental assets is that they are also economic assets if they are properly taken care of and maintained. I assume both in the United States and other parts of the world, ecotourism and diving and all this is generating some local economy. And is that starting to have some impact in terms of the care and the preservation of reefs?

Mr. GARCIA. I think so. I think people are beginning to appreciate the fact that the economy and natural resources are inextricably linked, and that if we destroy those resources, we are going to impair the economy. As I noted earlier, in the Florida Keys or in Hawaii, if the reefs disappear, you are going to feel the impact on tourism. If the tourists disappear, the dollars won't be there. And if those dollars aren't there, then the economy is going to suffer. There is a very direct economic impact associated with these resources and their use.

Mr. MILLER. I am sorry that I came in late in your testimony. But if you haven't touched on it—if you have, I will be glad to review your statement—but where do you put the state of the reefs, you know, if you were to measure, where are we going here? Are we in a state of continued decline for the moment or are we stabilizing this effort? I mean, from what you read in the popular press, it suggests that the assault still continues certainly on a worldwide basis.

Mr. GARCIA. That is correct. It does continue. It hasn't stabilized. There is a serious crisis. Reef ecosystems are in decline globally, and as I noted in my testimony, nationally. The estimate I believe is that 10 percent are dead or dying, another 30 percent could die if there is not intervention in the next 10, 20, 30 years, and additional reefs would also be subject to disease and death if we don't reverse this trend.

Part of our program is to educate the public and to mobilize the public to take action to protect these resources and to understand their value to the economy generally and to our heritage.

Mr. MILLER. Thank you. Thank you, Mr. Chairman.

Mr. PETERSON. Mr. Jones.

Mr. WALTER JONES. Mr. Chairman, thank you very much, and I also want to apologize to Mr. Jones and Mr. Garcia—I have a sore throat, excuse me—for not being here for your testimony. And the question that I have, Mr. Jones, is really not under your agency's

jurisdiction, but are you familiar with the USAID Program known as CAMPFIRE?

Mr. MARSHALL JONES. Yes, sir, I am.

Mr. WALTER JONES. Would you please share with the panel what this program is all about, how it works, and the dollars involved?

Mr. MARSHALL JONES. Sir, I am not the best person to give you an expert testimony on CAMPFIRE. It is a program which originated within the country of Zimbabwe in recognition that it is the local villages who live with wildlife who in the long run will be the ones to determine whether those wildlife populations survive or not.

And particularly in the case of elephants, a species that has both tremendous potential values for all the reasons that are outlined in my written testimony, and also potentially can do great harm both to crops and to people themselves, a movement, I can't describe who or where this started, except to say that particularly within Zimbabwe there was a feeling that local people need to become involved in the management of wildlife populations.

CAMPFIRE was an attempt, still is an attempt, to do that, to give local people the opportunity to participate in the management of their wildlife and to reap economic benefits from that, benefits that will give them a stake in conservation, rather than seeing wildlife as a nuisance or, even worse, perhaps as a symbol of colonial governments and the usurpation of their resources, something that belongs to them and something they have a stake to take care of.

As I understand it, USAID put funding into CAMPFIRE to enable CAMPFIRE to build the capacity of these local organizations throughout the country to participate in the wildlife management. We support the general principle of sustainable utilization of wildlife within the Department of the Interior. We think that the goals and the concepts in the CAMPFIRE program are excellent. They are ones which have been now modeled in other countries, but they are being adapted to the local situations.

We understand there are questions about the specific aspects of CAMPFIRE and how it has been managed. And, sir, those are things that I am not expert enough to be able to comment on. What I can tell you is we support the goals and objectives, and we hope that CAMPFIRE will be a success because we think that is essential for the conservation of wildlife in southern Africa.

Those are the countries where, in fact, elephant populations have not declined. Elephant populations are stable or increasing, countries that in general have done the best job with maintaining their wildlife resource. It is one of the few natural resources that some of those countries have, and we hope that the program will be a success.

Mr. WALTER JONES. Do you have enough knowledge—and I realize if you don't, again, because it is not your agency—but that the dollar is trickling down to the average citizen in Zimbabwe?

Mr. MARSHALL JONES. Sir, I was in Zimbabwe a few years ago and visited one of the CAMPFIRE districts, and I saw a health clinic that was built by revenues which came from CAMPFIRE. So I am sure that revenues are coming down and going to local communities where they are using them for everything from the con-

struction of schools and clinics to cash payments to people who may have a very marginal income, only a few hundred dollars a year per capita income.

How much of the funding goes down to the villagers versus how much is used for administrative costs or any other part of the program, I would not be able to comment. But I have seen with my own eyes some of the good benefits that can occur if the program works correctly.

Mr. WALTER JONES. My last question, again, is how much money since the program started has been invested in the CAMPFIRE program?

Mr. MARSHALL JONES. Sir, that is a question I cannot answer.

Mr. WALTER JONES. OK. Thank you very much.

Mr. PETERSON. I would like to thank the members. Due to restraint of time and two more panels, instead of a second round, I am going to ask unanimous consent for Mr. Abercrombie to ask specific questions to Mr.——

Mr. MILLER. Mr. Chairman, if I might, I would like to follow on a question that Mr. Jones just asked if I might when Mr. Abercrombie is done.

Mr. PETERSON. I yield to Mr.——

Mr. MILLER. Go ahead first and then I will——

Mr. PETERSON. Mr. Abercrombie.

Mr. ABERCROMBIE. I have a brief question we can follow for Mr. Garcia. Information from our staff and from my own reading, they cite an article—I think it was already mentioned—in the Washington Post. Miller has cited the popular press—talking about disease in the coral reefs in Florida.

And in that same article, they mention another disease. One is a white scum, something of that nature, in Florida, and another disease in Hawaii. But I am unable to discover in Hawaii precisely what it was that was spoken of. It was almost a throw-away sentence in the article, and I wonder if you have something you could—if you can't do it today—look into it and tell me about it because I can't find it?

Mr. GARCIA. Sure. I would be happy to look into it, but I would also suggest that you have a panel far more expert than I in the diseases associated with reefs that may be able to answer your question today.

[The following was submitted:]

"WHITE POX" CORAL REEF DISEASE

NOAA is not currently conducting any reasearch or monitoring activities regarding the occurrence of "white pox" coral reef disease in Hawaiian waters. For further information, it is recommended that you contact Mr. Paul Jokiel, University of Hawaii/Institute of Marine Biology, 1000 Pope Road, HI 96822 (tel 808-236-7440).

Mr. ABERCROMBIE. OK. Thank you.

Mr. PETERSON. Mr. Miller for a follow-up.

Mr. MILLER. Just to follow on the points raised by Mr. Jones, and maybe other witnesses can comment on it. But as I understand, your program is the African Elephant Conservation Fund. That is what we are here about. And that is about $1 million. And the theory of that is that we are engaging in African elephant conservation, I assume?

Mr. MARSHALL JONES. That is correct.

Mr. MILLER. Truth in labeling. I mean, that is the—I guess the question I would have to follow is that there seems to be a substantial amount of other moneys that are flowing into these same regions.

And I just ask if you have a sense of whether or not when we look at these programs and the managements of these programs and the results, are they consistent with the African elephant conservation program, or are you getting—are there other programs that are having more of an impact than this $1 million that may be wiping out the purposes and intent of this program?

Mr. MARSHALL JONES. Mr. Miller, the African Elephant Conservation Fund is the only dedicated fund just for elephant conservation right now. There are a lot of other donors which operate in Africa, but their efforts are not focused on elephants.

Mr. MILLER. No, but let us just go to CAMPFIRE. That is a USAID program, is it not?

Mr. MARSHALL JONES. Yes.

Mr. MILLER. Most of the funding comes from that. That looks to me like it is going to be—we have spent about $5 million, and we are now talking about spending $20 million. Is that consistent with what people believe we are doing in terms of African elephant conservation? You suggest you think that program is working, and I am just asking is that consistent with what we believe is the intent of what is happening here?

Mr. MARSHALL JONES. The goals of that program are entirely consistent with elephant conservation. Obviously, the program addresses a broad variety of things. Elephants are touched on in the program. The goals are consistent. I can't comment on the operation of the program or whether the program has been achieving the objectives which they——

Mr. MILLER. Well, part of that program is about generating ecotourism or around the hunting of elephants, is it not?

Mr. MARSHALL JONES. Both, yes, sir.

Mr. MILLER. Is the take of those elephants consistent with the conservation of the African elephant?

Mr. MARSHALL JONES. We believe it is. We approve the import of African elephant trophies into the United States from countries which have a sustainable program. Those programs result in the taking of less than one percent of the elephant population each year. The large bulls are those which trophy hunters will single out.

And as long as those programs are well managed and result in revenues which are returned to conservation programs, we are able to approve them, and we have a number of countries that we have approved for the import of trophies. We think that hunting is consistent with the Elephant Conservation Act, and the Act specifically addresses that in its text.

Mr. MILLER. OK. Thank you. Thank you, Mr. Chairman.

Mr. PETERSON. I would like to thank Mr. Jones and Mr. Garcia for their testimony and the members for their questions. We will now introduce the next panel. The first witness of the next panel is Dr. Terry Maple, the Director of Zoo Atlanta; Dr. Teresa Telecky, the Director of the Wildlife Trade Program of the Humane Society

of the United States; the Honorable Ron Marlenee, Director of Legislative Affairs at Safari Club International; Ms. Gina De Ferrari, the Director of TRAFFIC for the World Wildlife Fund; Dr. Brian Child, the Community Development Advisor of Longwa Integrated Rural Development Program of Zimbabwe.

I would like to remind the witnesses that under our committee rules, they must limit their oral statements to five minutes, but that their entire statement will appear in the record. We will also allow the entire panel to testify before questioning the witnesses. The Chairman now recognizes Dr. Maple. And I guess I should correct—the last one I mentioned is from Zambia, not Zimbabwe. Welcome to the panel. Mr. Maple, you can proceed.

STATEMENT OF DR. TERRY MAPLE, DIRECTOR OF ZOO ATLANTA

Mr. MAPLE. Thank you very much. When America's zoo directors behold an elephant, the see it through the eyes of the nation's 120 million zoo visitors. There are roughly 40,000 mammals on exhibit in the 170 accredited institutions which comprise the American Association of Zoos and Aquariums. Only 136 African elephants currently reside in American zoos.

They are extraordinarily difficult to properly exhibit, manage, and breed. It will be many, many years until we can proclaim a self-sustaining captive population. Even if we could clone an elephant to obtain a normal adult, we would spend decades nurturing and socializing a long-lived creature with a complex social structure and intellectual powers that rival those of human kind.

The successful management of elephants in zoos is our most labor intensive and expensive form of mammalian husbandry. It is as much art as it is science, and its expert practitioners, the elephant keepers, must be alert and savvy each and every day that they walk among the world's largest land mammals. Zoo professionals respect elephants, while our visitors shower them with affection. The label "charismatic megavertabrate" is a perfect fit with the African elephant.

I rise to support reauthorization of the African Elephant Conservation Act because I believe that its grants program is making a significant difference in Africa. It is doing what was intended in providing critical financial assistance to support protection, conservation, and management of African elephants in the wild.

To date, 17 African countries have benefited from the 50 projects funded with over $5 million of programmatic money and more than $8 million in matching funds. The identified needs are greater than the sum expended by a factor of 20.

We have made an important start with this very important program. The Grants Program of the African Elephant Conservation Act is an example of American leadership at its best. We are fact-finding; we are solving real problems; we are team-building; and we are making a difference in the field.

As one who must live by a budget based on a competitive marketplace, I recognize the importance of cost-effective, well-designed, focused, and flexible programs. The African Elephant Conservation Act was designed to encourage donations from private sources, and the record demonstrates this strategy has been successful.

I regard this program as a classic example of a public-private partnership. The key word is partnership, as our government must be an effective and willing partner with other responsible governments and other conservation organizations if we are going to save elephants in Africa.

In my opinion, there is great potential to dramatically grow the private side of the match to help fill the gap between proposed and funded projects. I will do what I can to encourage expanded participation by the nation's zoos. And working together we will accomplish a great deal more in the future.

Because the needs are great and the funding at present modest, the African Elephant Conservation Act was also designed to provide quick, short-term support for holding actions and other conservation measures in concert with existing or proposed long-range activities or until such activities are in place.

Experts from the field have prioritized well, ensuring that our contributions are applied to the most critical endeavors, but in ways that contribute to a holistic plan. These are thoughtful programs administered by experienced personnel who are committed to long-term conservation action. America's continued involvement in such programs instills confidence in situations where morale can fluctuate wildly on an eventful day.

Now, Africa's elephants are huge and visible creatures. Their decline throughout their range has been swift and dramatic. They are a symbol and a metaphor for our protection efforts. And we know that habitat destruction has been a factor in their decline, but we also know that poachers continue to annihilate whole populations of elephants throughout Africa.

I visited sites in Kenya's Tsavo National Park where this poaching is evident. And a fresh kill by poachers, I must say, is a deeply disturbing event. It is an image that is lasting and something that you cannot forget if you witnessed it.

I would like to recall some words from our Senator in Georgia, Paul Coverdell, who recently identified the 104th Congress as the "most aggressive campaign to protect the environment in recent history." He cited 11 major environmental initiatives which would provide a "safer and healthier environment for all," including the Everglades Protection Amendments to the 1996 Farm Bill.

I want you to know that this is the kind of commitment that the Congress has made is important. It is important for elephants. It is important certainly for the nature world.

Mr. PETERSON. Mr. Maple?

Mr. MAPLE. This pact, I want to add, is—pardon me, sir?

Mr. PETERSON. We need to move to the next witness. We are running short on time here.

Mr. MAPLE. I am sorry. Would you grant me one last paragraph?

Mr. PETERSON. Sure.

Mr. MAPLE. OK. I simply wanted to quote Senator Coverdell. He said, "History will judge this Congress on its merits, and in terms of environmental protection, it must surely be said they were committed to conservation." We are indebted to the strong leaders who have sponsored reauthorization of this Act. I thank you for this, and I would hope that the Elephant Conservation Act is a very good start for this Congress. Thank you.

[Statement of Mr. Maple may be found at end of hearing.]

Mr. PETERSON. Thank you. Dr. Telecky.

STATEMENT OF DR. TERESA TELECKY, DIRECTOR OF THE WILDLIFE TRADE PROGRAM, THE HUMANE SOCIETY OF THE UNITED STATES

Ms. TELECKY. Good morning, Mr. Chairman, and members of the Subcommittee. Thank you for this opportunity to testify on the reauthorization of the African Elephant Conservation Act on behalf of the Humane Society of the United States and 12 other organizations.

Mr. Chairman, in 1988 when the African Elephant Conservation Act was passed, you will recall that approximately 100,000 elephants were being killed each year to satisfy the world demand for ivory. Elephant numbers had dropped from about 1.3 million in 1979 to only 700,000 and were declining by about 10 percent per year. Today, there are fewer than 543,000 elephants remaining in the wild.

Elephants have virtually disappeared from some areas of Africa. The average weight of a tusk being exported from Africa had dropped from 35 pounds in 1979 to only 13 pounds in 1988, indicating that older elephants were being wiped out by the ivory trade. The ivory control system adopted by CITES to regulate the trade was clearly failing, and by 1988, about 80 percent of ivory in trade was from poached elephants.

The passage of the African Elephant Conservation Act in 1988 and President Bush's subsequent ban on the importation of ivory into the United States under the Act, which happened in June 1989, sent a clear message to the CITES parties who, five months later and with the support of the majority of African elephant range states, placed the African elephant on CITES Appendix I, banning the international commercial trade in elephants and elephant parts.

The ivory trade ban stopped the dramatic decline of the African elephant. And although poaching and illegal ivory trade still occur, the levels are minuscule compared to when the ivory trade was legal.

However, most elephant populations have yet to show signs of recovery from the years of unfettered poaching for the ivory trade. Despite this, Zimbabwe, Botswana, and Namibia will propose at this June 1997 CITES meeting to remove their populations of elephants from CITES Appendix I in order to sell ivory stockpiles to Japan, and to trade in live elephants and elephant trophies. Zimbabwe will also propose to trade in ivory souvenirs and elephant hides.

Mr. Chairman, any change in the listing of the African elephant under CITES, even if it is portrayed in live animals, trophies, souvenirs or hides, will unfortunately be seen by elephant poachers and ivory dealers as a sign that the ivory trade ban will soon be relaxed.

Indeed, elephant poaching increased in Kenya and other countries in months preceding each CITES meeting since 1989. And now just a few months before this June's CITES meeting, 280 ele-

phants, including mothers and infants, have been found massacred in the Congo, their tusks removed.

Moreover, in February 1997, just last month, a CITES panel of experts concluded, first, that control over ivory stockpiles is inadequate in Botswana and requires improvement in Namibia, and that there continues to be movement of ivory through both countries to South Africa.

Second, that law enforcement is "grossly inadequate" in Zimbabwe which has permitted the establishment of large scale ivory carving operations that sell commercial quantities of semiworked ivory to Asian countries, that large amounts of illegal ivory are passing through Zimbabwe to South Africa, and that Zimbabwe has poor control over other elephant products. And, finally, in Japan, the illegal import of partially worked ivory or pieces of tusks cannot be reliably detected.

Mr. Chairman, it is clear that poachers stand ready to resume elephant poaching on a large scale, and that none of the three proponent countries, nor Japan, have control over ivory trade even now when it is banned from international trade.

Removing any population from CITES Appendix I will reverse all the progress that has been made since passage of the African Elephant Act. We, therefore, strongly urge you and other members of the Subcommittee to voice support for retaining all populations of the African elephant on Appendix I.

If passed, these proposals will not only allow the sale of dusty stockpiles of ivory, but will clear out ivory stockrooms, making way for new ivory from culled elephants. The HSUS opposes the use of culling as a means to control elephant populations and offers hope for a humane alternative.

In January 1997, the HSUS signed a $1 million, five-year agreement with the National Parks Board of South Africa to, among other activities, conduct a study on the use of amino contraception as a means for humanely controlling the size and growth of elephant populations in Kruger National Park. And Dr. Jay Kirkpatrick, the lead researcher on the project, is here with me today to answer your questions. Mr. Chairman, my five minutes seems to have run out awfully quickly. May I just conclude?

Mr. PETERSON. Yes, please.

Ms. TELECKY. OK. We wanted to conclude by commenting on the CAMPFIRE program. We have a number of problems with money from the African Elephant Conservation Act going to this program, the first of which is that the program has promoted the resumption of the ivory trade. And as I have just described to you, any resumption in the ivory trade would doom the elephants.

Secondly, CAMPFIRE has lobbied to change the Endangered Species Act in this country to weaken it, to allow the import of more endangered and threatened animals into this country, and that is of grave concern to us. And, thirdly and finally, CAMPFIRE is based primarily on African elephant trophy hunting, which is an activity that is opposed by 84 percent of American citizens. And we don't think that money should be used from this Act to fund such programs. Thank you, Mr. Chairman.

[Statement of Ms. Telecky may be found at end of hearing.]

Mr. PETERSON. Thank you. Mr. Marlenee.

STATEMENT OF THE HONORABLE RON MARLENEE, DIRECTOR OF LEGISLATIVE AFFAIRS, SAFARI CLUB INTERNATIONAL; ACCOMPANIED BY STUART MARKS

Mr. MARLENEE. Thank you, Mr. Chairman. Mr. Chairman, we should not be surprised at the almost universal support of the African Elephant Conservation Act and of CAMPFIRE. SCI, Safari Club International, strongly supports the passage of H.R. 39 which will renew the Elephant Conservation Act.

The AECA funds could almost be considered conscience money. The ESA and an almost virtual ban on trophy hunting has stripped the host nations of their ability to fund conservation and enhancement programs in a meaningful way.

One of the reasons that the African Elephant Conservation Act is necessary is that the Endangered Species Act is long on mandates and sanctions and totally devoid of recovery support. 82 percent of the mammals listed under the ESA are foreign, yet the Act provides no benefit for foreign species with regard to recovery.

Your invitation to testify asked us to address the various grant programs that we have under the Act. Accordingly, we will address and briefly discuss our three grant projects, two in Tanzania and one in Zimbabwe. And by the way, Mr. Chairman, I have included all of the information required at the end of my written testimony and ask that that be submitted for the record along with Dr. Stuart Marks's testimony.

The matching grant for the first Tanzanian project is $36,000, and it was for a pilot program to train government game scouts to gather elephant data and pinpoint it geographically using handheld GPS systems. The date is needed for wildlife management. Game scouts accompany safari hunting parties into the field at the expense of the hunter. Here again, we extend the effective dollars.

The grant funds the training of scouts to collect elephant data while in the field. It equips them with the Magellans to pinpoint the location, to accompany their recorded observations. It also provides a central computer storage data center. In effect, it has helped to extend the training of game scouts to act as biological assistants while in the field.

A second phase of the grant has been approved to allow an increase in the number of game scouts that can be trained. The program also teaches the game scouts to evaluate the elephant populations from the point of view of their hunting trophy quality.

This is important because it maximizes the revenue that can be obtained from a culling program and from the use of this natural resource which results in a minimal biological impact of that particular program and actually reduces the number of elephants required to be taken to fund programs. The revenues are a key incentive to conservation and provide much of the funding used for such conservation.

The second matching grant was for $84,000 to help fund a survey of Tanzania's elephant populations which may be the largest in Africa. It will fund aerial surveys of three specific areas completing the collection of data which will provide a new base line for elephant populations in Tanzania.

In carefully reviewing the submitted testimony of HSUS, I have noted criticism of SCI and CAMPFIRE. Mr. Chairman, to be criti-

cized by HSUS is a badge of honor and distinction. To merit that criticism, one must be making a contribution effectively and meritoriously.

Perhaps it is research in saving a child's life. Perhaps it is programs to feed hungry people. Or, in this case, it may be as simple as teaching people to protect and harvest animals to provide revenue that would feed whole villages. I have asked our esteemed and respected Dr. Marks to explain in a couple of short minutes what our third grant about CAMPFIRE is all about.

[Statement of Mr. Marlenee may be found at end of hearing.]

Mr. GILCHREST. [presiding] Do you want to do that right now, Mr. Marlenee?

Mr. MARLENEE. Answer questions for you?

Mr. GILCHREST. Will this take more than a minute or two?

Mr. MARKS. I will try in two or three minutes, sir.

Mr. GILCHREST. All right. OK. We will let you go, and then I think we will decide whether or not we will go to the next two witnesses before the vote is taken. I would say that I think a badge of honor is for all of us to get down at the table and express our opinions in a sense of tolerance for each other's differences so that we can find a way collectively to proceed to protect the world's ecosystems and great mammals. And I think that is what we are about here today. We will give you two minutes, sir.

Mr. MARKS. Thank you, Mr. Chairman. My name is Stuart Marks. I am Director of Research and Community Development for Safari Club International. I have a Ph.D. in Animal Ecology and have taught anthropology. Having grown up in rural central Africa, I have spent some 30 years researching community uses of wildlife and assessing community-based wildlife programs. More to the point, I am the project administrator of the African Elephant Conservation grant support to CAMPFIRE in Zimbabwe and have been associated with it from the beginning.

Mr. MILLER. Do we have a disclosure form?

Mr. MARKS. Yes. I think Congressman Marlenee just gave you one in our statement.

Mr. MILLER. Ron, you asked—is that in your main packet? Is that part of your—the disclosure form I am talking about is one of the other witnesses have—maybe we can sort this out while we go for a vote. In terms of Federal grants and what have you, have you filed that with the committee?

Mr. MARLENEE. What is it you asked, George?

Mr. MILLER. Witnesses are required to have a disclosure form in terms of Federal grants and participations or moneys received or programs worked on. And we have—but I don't know if we have it for here. Is this it?

Mr. MARKS. Yes, sir.

Mr. PETERSON. [presiding] Mr. Miller will review that in just a moment.

Mr. MILLER. Well, this is for the Safari Club.

Mr. ABERCROMBIE. If the gentleman will yield, the problem here is that we have added new layers of bureaucracy since the 104th Congress. And absent a—this is nothing against you, doctor, but absent what amounts to a curriculum vitae from you, you can't tes-

tify unless we could waive it or something of that nature. What I would be willing to do——

Mr. MARLENEE. May I respond?

Mr. PETERSON. Mr. Marlenee.

Mr. MARLENEE. Yes. The testimony that SCI provided that I spoke to contains all of the grant information, my name, all of the addresses and information that are necessary. And it is in the members' packet under SCI testimony. It is with the colored logo. Dr. Marks is a supplement to my testimony and is included under the blanket of what I have provided. I think counsel can point that out to you.

Mr. ABERCROMBIE. Excuse me, Mr. Chairman. Nice try, Mr. Marlenee. But, you know, Mr. Maple has got an example right here—what is required. I don't require it. I don't think a lot of us require it, but that is what the rules say now. And, you know, it has got everything, including all your sins of commission and omission has to be in.

Mr. PETERSON. We have an opportune time here to break to go take a vote, and when we come back, we will have it all cleared up. We have to break. We will be back shortly. Thank you. The hearing is in temporary recess.

[Recess.]

Mr. PETERSON. We will reconvene the Subcommittee hearing, and we will move to the next witness, Gina De Ferrari. Thank you, Gina, and please proceed.

STATEMENT OF GINA DE FERRARI, DIRECTOR OF TRAFFIC, WORLD WILDLIFE FUND

Ms. DE FERRARI. Mr. Chairman, thank you for the opportunity to appear here today. The World Wildlife Fund is the largest private conservation organization working internationally to protect wildlife and wildlife habitats. We currently support conservation efforts in many key African elephant range states.

I am here today to convey our views on the effectiveness of the African Elephant Conservation Act. First, I want to thank you, Mr. Chairman, for convening this hearing and applaud the Subcommittee for taking a leadership role in securing passage of this Act.

The African Elephant Fund administered by the Fish and Wildlife Service has provided about $5.4 million over eight years for elephant conservation throughout Africa. It supported 66 grants in 17 African countries. In our view, the Fish and Wildlife Service has been both efficient and effective in managing this grant program.

This fund has been the only continuous source of new money for African elephant conservation efforts since the 1989 ivory trade ban took effect. Unfortunately, funding from other sources have proven erratic. In the immediate aftermath of the ivory trade ban when the world was sensitized to the elephants' dilemma, funding flowed from various governments, multilateral bodies, and NGO's to projects in many parts of Africa.

Subsequently, however, funding largely dried up. A 1995 review, co-sponsored by World Wildlife Fund and the Fish and Wildlife Service, revealed that many African parks and wildlife departments have suffered severe budget cuts, some around the order of

90 percent or more over four years, as was the case with Tanzania from 1989 to 1993.

This not only underscores a very serious trend, but also makes the moneys authorized by the African Elephant Act even more valuable and needed. A key list of World Wildlife Fund projects funded under the Act is appended at the end of my testimony. I would like to highlight one in particular which represents the most focused of our efforts.

But first I would like to differentiate between the kinds of issues associated with elephant conservations in southern Africa from those in central Africa. In southern Africa, elephant conservation problems are increasingly related to human-elephant conflicts as elephant populations outgrow the available habitat within protected areas. And, increasingly, conservation projects there are designed to find ways to minimize those conflicts.

By contrast, central Africa is many years behind east and southern Africa with respect to protected areas in which elephants can find refuge. Poaching continues to pose a serious problem. It is important to note that as many as half of Africa's elephants live in this region. It is here in the Central African Republic that World Wildlife Fund has focused a good bit of its effort.

The southwestern region of this country contains its last stronghold of lowland tropical forest which is home to large numbers of elephants. The government of the Central African Republic and World Wildlife Fund have worked together to create a multiple use reserve called Dzanga-Sangha and national park called Dzanga-Ndoki to protect this unique ecosystem.

We have had the support of the Fish and Wildlife Service for nearly six years. The antipoaching operations supported by the Fish and Wildlife Service include a force of 30 guards and have resulted in a marked decrease in poaching and a significant increase in the elephant population. The recorded density of more than three elephants per square kilometer is one of the highest, if not the highest, ever recorded in the forests of Africa.

A major focus of this project has been the participation of local people. It is one of the first conservation initiatives in the lowland forests of Africa to integrate conservation with the needs of the rural poor. As such, it serves as an important prototype for future community conservation efforts in central Africa in which local people realize direct benefits from wildlife conservation.

The objective of the project to stop large scale poaching of elephants in the core area of Dzanga-Sangha has clearly been reached. The elephant population is expanding, and that is a situation that is unique in the central Africa region. You may have seen the TV documentary last week showing the slaughter of 200 elephants in the Congo last fall. It was a gruesome scene, one which underscores the importance of establishing and effectively guarding protected areas in this region of Africa where poaching is still a very real threat.

Fish and Wildlife Service funding has provided the impetus for the establishment of a network of protected areas in central Africa and has leverage funds from the World Wildlife Fund, the Wildlife Conservation Society, as well as generous funding from European governments.

In summary, I would like to express my strong support for the accomplishments that have been achieved with funding under the African Elephant Conservation Act, commend the Fish and Wildlife Service for an excellent job in administering the fund, thank you for your continuing support, and urge Congress to fund the Act as generously as it can.

[Statement of Ms. De Ferrari may be found at end of hearing.]

Mr. PETERSON. Boy, she has got the pace right down. Thank you very much. Dr. Brian Child.

STATEMENT OF DR. BRIAN CHILD, COMMUNITY DEVELOPMENT ADVISOR, LONGWA INTEGRATED RURAL DEVELOPMENT PROGRAM OF ZAMBIA

Mr. CHILD. Thank you very much. I live in the rural area in Africa amongst rural people, and pictures like that with washing being knocked out of my garden are very familiar. I have managed the CAMPFIRE program for six years, and I now manage a very similar program in Zambia.

We in Africa would like to thank the AECA and the U.S. Government for supporting antipoaching using this money. It has been very useful. But we would also like to commend the new approach whereby they are supporting the new African approach to conservation. And I would like to make three points in support of the recommendation that this continues.

Firstly, southern Africa's sustainable use approach is probably the greatest conservation success since Yellowstone over 100 years ago. Secondly, community based natural resource management, including CAMPFIRE, which has come up a lot, is the first major success anywhere in matching wildlife conservation and rural development in conditions of serious human poverty.

And, thirdly, a lot of these successes are being deliberately misrepresented by groups with little understanding of Africa and with scant regard for the truth, wildlife conservation, and human well-being.

As I said, Yellowstone was the first success, and about 15 percent of southern Africa is protected as national parks because of that American model. But this model is not appropriate outside national parks where you have human population doubling every 20 years and widespread human poverty. People die because they don't have $2 for anti-malaria drugs.

This approach is based on the reality that the reasons that elephants and wildlife disappear is because people grow more and more crops and more and more cattle. If you don't make wildlife as competitive, it will disappear.

The result of this new policy is a massive increase in land under wildlife. Starting with elephants, in Zimbabwe, the population has increased in the last 15 years from 47,000 to 68,000. That is a massive increase in elephants. The increase is 2 to 3,000 per year compared to an offtake in the CAMPFIRE program of 130. So it is definitely sustainable.

So in summary of this new paradigm, it has tripled the area of wildlife conservation, which is amazing, and that is why we claim it is the greatest conservation success since Yellowstone.

Turning to community based management, which seems to have come up a lot this morning, the challenge is to do elephant conservation where there is poverty and where there are very serious conflicts of elephant. In Kenya, since 1989, 353 people have been killed by elephants. That is more people than were killed in TWA 800. So African people are terrified of wildlife.

The dilemma is how do we conserve destructive animals like elephants amongst people living in poverty? Now, we believe we have got a solution to this in that we give people the ownership of wildlife, and then we help them market it so they get benefits from wildlife and they conserve it.

And the reason why CAMPFIRE is in the limelight is because it has made huge strides in developing this philosophy. And I just want to stress that CAMPFIRE is much, much bigger than elephants. It is about democracy. It is about human development. It is about general wildlife conservation.

One of the key things in CAMPFIRE is that everything is done in a public forum. Rural communities meet to discuss how to use the money from wildlife and how to manage their wildlife. The result has been that wildlife has become valuable, and because it is valuable, it is now conserved. Much more land—triple the amount of land is allocated to wildlife, and a lot less animals are being killed.

The result—it is really important to stress this—of the CAMPFIRE program is the proliferation of grassroots democracies throughout southern Africa. It is promoting the democratic process in Africa. People get money. People invest in schools. And communities are being transformed from being dependent and downtrodden with no hope to people that can do things for themselves. And that is sustainable. That means less and less and less need for foreign aid.

This program is supported by major donors. USAID has played a major role in supporting it. The Elephant Conservation Act has helped. The British, the Germans, the EU, the Norwegians, the Danes all support these programs in southern Africa. In the testimony I have submitted 20 letters in support from major conservation agencies like WWF, IUC, and AWF, et cetera. So there is a lot of support for this program.

I see I am running out of time so I will just summarize by thanking the AECA for supporting one of Africa's biggest conservation success stories in 100 years, for promoting democracy, and for improving the livelihoods of millions of people. Thank you, Mr. Chairman.

[Statement of Mr. Child may be found at end of hearing.]

Mr. PETERSON. Thank you, Mr. Child. I have a question for Dr. Telecky. The one conservation project that your organization has in Africa devotes $2 million to the development of elephant contraceptives. If this project is successful, it will reduce the reproductive capacity of elephants which you maintain are endangered throughout the whole range. Where is the logic in trying to reduce the productive capacity of what you maintain is an endangered species?

Ms. TELECKY. Thank you, Mr. Chairman. In answer to your question, I would say that certainly African elephants are considered threatened under our Endangered Species Act. The IUCN con-

siders them to be threatened—endangered, rather, throughout the continent of Africa.

However, in certain areas, there seem to be concentrations of elephants especially where they have been artificially fenced in, and there is no way for them to maintain their normal migratory routes. And Kruger National Park is one of those places—Kruger National Park in South Africa.

In South Africa, they have quite a bit of tourism, and tourists were, of course, concerned about what they heard about 600 of these elephants being killed every year by government rangers essentially. They were culling the population in order to keep the level down. And tourists were becoming very concerned about that.

That was of concern to the South African government because they rely on tourists for quite a bit of income. And we approached them with an idea that we had. We had been working on contracepting a number of different species with an amino-contraceptive vaccine which can be used to control populations of animals without resorting to massive culling operations, which are publicly unpalatable.

And the South African government thought it was a good idea, and they have agreed to participate in some research on that with us. If you have any technical questions about the project, we have Dr. Jay Kirkpatrick here who is the research leader on that project.

Mr. PETERSON. I guess my response would be wouldn't it make more sense to translocate—have a translocation program where we move them to areas where they are really wanted and needed rather than using birth control?

Ms. TELECKY. Well, in fact, the South African government does translocate some of those elephants. They set up some new areas in South Africa where they are moving the elephants to. But they still feel the need to find a way to control the population even with the elephants being moved to other areas.

Mr. PETERSON. Thank you. Mr. Abercrombie.

Mr. ABERCROMBIE. Yes. We are at a disadvantage here. You folks know much more than we can right at this moment, and you have different points of view as to the question of hunting and whether or not that is a good idea.

I want to go back then to Dr. Maple. If you will give me one second to work my way back in the material. You said then in your—you are in favor of the AECA programs. Right?

Mr. MAPLE. Yes.

Mr. ABERCROMBIE. And your testimony isn't numbered so bear with me for a moment if you would. I am going to read to you. "These are thoughtful programs administered by experienced personnel committed to long-term conservation action," et cetera. "There are situations—confidence in situations where morale can fluctuate wildly on an eventful day.

"Such conditions exist in Central Africa today where Zoo Atlanta has been monitoring a small group of elephants in Rwanda's Akagera National Park. The virtual survival of small groups of elephants, gorillas, or other forms of life depends on equally small groups of dedicated conservationists and the modest resources to support them."

I want to use that as a basis for asking both Dr. Telecky and Ms. De Ferrari, and Dr. Child, you are saying different things. But Dr. Maple has indicated that there may be a variety of approaches here that work. It depends on the individual situation and whether it can be monitored and controlled.

So I would like—maybe, Dr. Maple, you can comment, if you would, on these other presentations. I mean, what are we to do? I think that the authorization is not at question. The point here is what kind of programs are going to be sustained? Should they all be sustained? Is this more a paradox than a contradiction?

Mr. MAPLE. Well, I do agree that down the road and maybe even already starting today there is some disagreement about these programs, the scope of them, and the nature of them. I kind of like to remember what Congressman Gilchrest said, before he left, a little bit earlier in the day about having a little tolerance for differences of opinion.

All of the people at this panel and many people in the audience are scholars. They are involved in these programs because they deeply believe in them. I think in the final analysis, a careful forum of evaluation of programs that are existing and programs that may occur in the future will be a critical variable in making these determinations.

It may be the case that our evaluation process could be improved, and I think that the U.S. Fish and Wildlife Service——

Mr. ABERCROMBIE. Let me go to that question. Take Rwanda. The political situation in Rwanda must make it very difficult for you to be able to do your monitoring.

Mr. MAPLE. Exactly so. In fact, in that particular instance, the chaos is so evident that it is difficult even to get personnel on the ground and to communicate with people who are there.

Mr. ABERCROMBIE. Well, my instinct then—yes. My time will run out fairly soon. My instinct is to support again under the right circumstances what Mr. Marlenee is talking about. Dr. Child, would you agree that you and Mr. Marlenee, the Safari Club's goals and your goals, they are compatible, are they not? Right? OK.

And at the same time I can see under circumstances where you have limited resources that the birth control—the contraception thing would be a very valuable thing if it works. But that is going to require a lot of attention and funds, will it not, Dr. Telecky?

Ms. TELECKY. Our experimental research is ongoing right now. By early 1998, we will know whether this type of project can work with elephants, but it is right now working in the management of wild horses and deer populations in the United States.

Mr. ABERCROMBIE. Well, preliminarily then what I am concluding, Mr. Chairman, is that probably all of these programs need to be supported depending on the context within which they are being conducted. I don't really see any contradictions here. I see parallels and some paradoxes operating. But what we need then is to have sufficient funding, and I know that comes back to the old question of where do you balance this.

But I think if we are to have good relations with Africa as a continent, and more particularly with those areas in which we have a demonstrated interest in the United States in conservation, and with tigers, rhinos, for example, as well as elephants, I think this

is the case. You may have to move rhinos, would you not, Dr. Maple? That tiger and rhino program may find necessity for moving those animals. Right?

Mr. MAPLE. Quite possible.

Mr. ABERCROMBIE. OK. So then I think, Mr. Chairman, what we are dealing with here is a question of adequate funding, and I for one cannot conclude yet whether any individual approach is superior one to the other. I think they are complementary.

Mr. CRAPO. [presiding] Thank you. The time of the gentleman has expired. Does the gentleman from California have questions?

Mr. MILLER. At the risk of being redundant——

Mr. CRAPO. Please go ahead.

Mr. MILLER. [continuing]—which in Congress is a privilege that we don't take lightly so don't laugh, but I am kind of in the position of Mr. Abercrombie. We have looked at a lot of background material on these programs. And the purpose of this hearing is to try to provide some sense of evaluation, whether we are headed off in the right direction or not, and that is not to suggest that this isn't without controversy, but that is part of the framework.

But I am taken with the notion that we are trying to apply some solutions that make sense on the ground. And, of course, that is where you get into controversy, but that is true in the United States. You know, we run into the questions of outright preservation of species and animals that are game animals, and we have that all the time.

But the fact of the matter is that the wildlife community, the hunting community has generated huge amounts of habitat preservation and increases in species as have the fishermen and others. And so I think it is all part of the same quilt here.

The question for us is are these working the way we want them to do. And when I say what we want them to do, I think there is a very clear sense in the American public's mind that this is about the protection and preservation of these animals and hopefully the habitat that they come to rely on. That is really the overarching theme here.

As Mr. Gilchrest pointed out, yes, we better figure out how to sit at the table together. But if there is something that drives this, if people get a sense that this funding is in contradiction to that overarching desire, then we have got a problem, which is different than a disagreement or a controversy about one approach versus the other in the smaller sense.

I just wonder if you maybe can build on what Mr. Abercrombie was talking to you, because I get a sense that we are here reviewing $1 million that we are trying to steer a very large ocean liner here with a spoon. We are not going to make a lot of progress. But how does this merge with other things that are going on, whether it is USAID and other programs? Maybe, Dr. Child, you might want to since you see some of this from other support systems.

Mr. CHILD. The African elephant funding has been—it is pretty well coordinated in southern Africa with major donors like USAID and the EU. In fact, the one project that is funded through this (AECA) is teaching communities how to set quotas, and that program is nested in entirely within a program that is coordinated by

the Zimbabwe government, and includes support from the United States, the EU, and so on.

So I think southern Africa has their act pretty well together—both within countries and between countries. For example, with the United States funding through USAID, there is a lot of networking that goes on, and the Namibians, Botswanans, Zambians, Mozambicans, and Zimbabwens work very closely together. So in that respect, it is very valuable.

Mr. MILLER. Let me go right to—and, Ron, you may want to comment on this and others. Is hunting an essential component? I guess maybe that is one of the questions that gets—that is always right below the surface here. Is this a very real and essential component to the success of the preservation and protection of these species?

Mr. CHILD. Definitely, and throughout all of southern Africa these programs are beginning with hunting. And the reason for that is they are starting with very marginal wildlife populations. There has been a lot of poaching in the past and so on. If it is difficult to see animals, it is difficult to have tourism, but you can have hunting.

So what happens is that you will have hunting for about 15 years, and then sometimes you get enough animals to do tourism. This is because when you hunt you are only taking two percent of the population which is growing at about 10 percent. So every year that you hunt, you probably have eight percent more animals which is very sustainable.

And so the communities and the farmers will be making a lot of money out of hunting, and then in certain areas where there is nice scenery or nice rivers or it is a good tourism place, they may then add a tourism venture and ecotourism venture or switch completely from hunting to tourism.

But hunting is a stepping stone from degraded cattle ranching to a wildlife production system. If you take out hunting, there is no way you are going to move from one to the other. So, yes, it is absolutely vital at least for the next 20 years.

Mr. MILLER. Anyone else on that point? Yes, Ron.

Mr. MARLENEE. George, may I respond to that? I believe naturally that hunting is a very important component because it is an element in stopping the poaching. Once these indigenous people have an invested interest in that wildlife, they are going to protect it and they are going to protect it so that they have a resource that will return enough to feed and clothe them in their villages. It is extremely important that they are vested with an interest in that wildlife, and that has been the case wherever hunting has occurred around the world.

Now, how much hunting? Well, hunting should be controlled in these instances, and it is controlled in two ways; one by our CITES agreement, which establishes quotas, in any country. They designate, these renown scientists, that you can take 60 here, five here, none over here. Nobody disagrees with that.

And then it is established by the professionals in each nation. Some of the foremost professionals in the world and wildlife management are involved in the programs in these African nations or

in the republics of what was formerly Russia. So that controlled, scientific approach yields the best of both worlds.

Mr. MILLER. Ms. Telecky?

Ms. TELECKY. Yes. Thank you. I would like to address the trophy hunting issue too if that is the subject that we are on. First of all, it has been claimed that trophy hunting has decreased poaching I guess in the case of Zimbabwe, in particular.

And I note that the Zimbabwe government has prepared a proposal for downlisting their elephants at the next CITES meeting in which they note—they give some poaching figures for four areas—four national park areas in Zimbabwe. And poaching has actually gone up in three of those areas since the CAMPFIRE program began. So I think to claim that elephant poaching has declined because of the implementation of this program is not quite right.

Secondly, I wanted to say that trophy hunting does not actually address the problem animal situation which was discussed by Dr. Child a moment ago—elephants going into villages and harming people and harming crops.

It really doesn't address that because the trophy hunters are not killing—they are not there when the problem animal is in the village. They are not killing the problem animal. They are killing, you know, a different animal essentially. So it doesn't really address that.

It also doesn't act as a population control measure because, of course, the hunters are going after the old males. Those are the ones with the big tusks. And this is not the way to control an elephant population. So I wanted to make those three points.

Mr. MILLER. Thank you. If I could just ask one——

Mr. CRAPO. You can have one additional question.

Mr. MILLER. Dr. Child, could you comment on that because when you talk about trophy hunting, and my friends who hunt and have seen their trophies, this is—as I understand the hunters, they are not going there to get any old elephant.

They are going there to get a particular elephant that looks a certain way, just as if you are trophy salmon fishing or what have you. You are looking for a certain—there are certain specifications in the hunting world on how you got this animal.

So is this really a management tool, or is it because it spins off revenues because there is a lot of money spent in the process of getting to the taking of that animal? But is it really a management tool—a crucial—I mean, is it an essential, as I started out saying, management tool?

Mr. CHILD. The primary reason for trophy hunting is to give the wildlife a value so people farm wildlife and not cattle. The actual take is not a management tool, it is a management necessity. And I would like to comment on two of the other points like the one about problem animals.

As you stated, American hunters generally like to take the biggest bulls and so on. But what we have worked out in Zimbabwe is that we have a cheaper deal whereby a hunter can come, and he can shoot an elephant, and he has to take the exact elephant that is eating the crops or killed somebody.

And he pays less for that, and he also feels better for it in many cases. It is marketing, you know. You have to market everything.

If you shoot an elephant and you don't make money out of it, that is a waste of resources, and that is something that we try to avoid.

We also try to reduce the number of elephants being killed. Before this program started, as I said, there were 300 killed a year. Now there are only 130 killed because they are valuable and because people are using them more carefully. They are not just somebody else's elephants that come and maraud through your fields. They are now your elephants, and you get $10,000 every time one is shot.

I also want to address the poaching issue. I work in these communities, and, sure, poaching still continues because life is not perfect. But once communities start to get benefits from wildlife, the social pressures can stop poaching overnight. And I have seen it happen in many, many instances. And it is very easy to pick out three villages and quote that poaching is going up. But as a general rule, throughout southern Africa where these programs are working, wildlife populations are going up. Thank you.

Mr. MARLENEE. George, may I address that question?

Mr. ABERCROMBIE. Excuse me. Would the gentleman yield on that?

Mr. MILLER. It is up to——

Mr. CRAPO. Certainly.

Mr. ABERCROMBIE. Just so I make sure—and, excuse me, Ron. You know what this comes back to in my mind now on the poaching—because, again, we can argue back and forth here, but there wouldn't be poaching in the first place even under the circumstances you cite or as much poaching if there wasn't a market someplace.

It is like drugs in this country, and this stupid decertification argument that we are having right now. The drugs are sold in this country. You have no business preaching to other countries about it when we are consuming them. And so if it wasn't for the fact that there is a market for that, the poaching in addition to the circumstances that you cite would decline or decrease or diminish or disappear. Right?

There has to be a market. Somebody has got to be paying them for that. So don't we need to concentrate some funds and some international effort on getting sanctions—genuine sanctions, hard-hitting sanctions on countries that import this ivory?

Mr. CHILD. I think the motivation for poaching is much broader than the ivory trade. People kill lions because they are dangerous. In my area, we have had 11 lions killed this year because they kill people. The other major market is meat. Africans who only have one or two meals of porridge a day crave meat, and they kill elephants and they kill buffalo to eat. And there is no way you are ever going to close that market down. And the ivory market is a very specific issue and——

Mr. ABERCROMBIE. Well, to the degree then there is an ivory market there, isn't the exporting of it because there is a market to receive the ivory?

Mr. CHILD. The CAMPFIRE program has been incredibly successful in turning wildlife land back into wildlife because it is profitable. If you traded ivory and it was twice as profitable, maybe

there would be twice as many animals. I mean, that is an argument that——

Mr. ABERCROMBIE. I understand. If that was coming as a result of programs, that would be one thing. But now the poaching is for two reasons—for food and for—or—I'm saying poaching now—for food and for profit from the ivory. Right?

Mr. CHILD. Yes. But——

Mr. ABERCROMBIE. OK. I just think that the answer is—part of the answer has to be to make sure that if there is illegal trade as opposed to legal trade—maybe we can get back into a situation where there is enough elephants and enough ivory where you can get back in legal trade. But right now those populations under stress are under more stress from those who think that the acquisition of ivory is going to be profitable to them. Right?

Mr. CHILD. Yes. But we are in a situation in southern Africa where there are actually too many elephants. And we are also in a situation where now that the communities are benefiting from them, if a poacher comes in, he has got to stay somewhere. He has got to get food. They will report him. So your information system is much better than it used to be.

Mr. ABERCROMBIE. Thank you.

Mr. CRAPO. The Chair will allow Mr. Marlenee to answer if you still have one, and then we are going to go to the next panel. Do you have an answer? Did you want to make an answer?

Mr. MARLENEE. Yes. I would like to respond to George's specific question about harvesting the older elephants, and that has been brought up here—the trophy hunting part of it. The oldest males monopolize the females, and so in many cases these are not the most virile. Their fertility count is not the highest. So you select that oldest male, remove him from the herd, and it increases the genetic diversity and gives the younger bulls a chance to procreate, and it——

Mr. ABERCROMBIE. You better be careful. We are all going to get in trouble here, Ron, pretty soon. Somebody may want to advance that idea elsewhere.

Mr. MARLENEE. I am starting to gray quite a lot.

Mr. CRAPO. We are not going to let this hearing get into that issue or the subject of decertification.

Mr. ABERCROMBIE. Can we go to the next panel real quick?

Mr. CRAPO. The Chair would like to thank this panel for their patience and their presentation of materials. And the panel is now excused. Thank you very much for your information and participation. We would like to invite to come forward now our fourth and final panel of witnesses.

And while they are changing places at the table and coming forward, let me indicate the first witness on this panel is Ms. Barbara Jeanne Polo, the Political Director of the American Oceans Campaign.

Following her will be Dr. James W. Porter, the Professor of Ecology and Marine Sciences at the University of Georgia, and following him will be Dr. Robert Ginsburg, part of the International Year of the Reef Organizing Committee and Professor of Marine Geology and Geophysics at the Rosenstile School of Marine and Atmospheric Sciences.

We would like to welcome our witnesses for this panel. I know you have been patient all day long and appreciate your patience. Please let me remind our witnesses that under the committee rules, they must limit their testimony to five minutes.

But let me reassure you that your entire statement will appear in the record, and the Members of Congress and their staff, even those who aren't here, will fully be made—have that information made available to them. We will also allow the entire panel to testify before we begin questioning of the panel. And the Chair would now recognize Ms. Polo.

STATEMENT OF BARBARA JEANNE POLO, POLITICAL DIRECTOR, AMERICAN OCEANS CAMPAIGN

Ms. POLO. Thank you. My name is Barbara Jeanne Polo. I am the Political Director of American Oceans Campaign, a national environmental organization dedicated to the protection and restoration of marine ecosystems.

On behalf of my organization and its members, I would like to thank Chairman Saxton, Mr. Abercrombie, and the Subcommittee——

Mr. CRAPO. Could you bring the mike just a little closer to your mouth please? Sorry about that.

Ms. POLO. That is OK. [continuing]—for holding this hearing today on coral reef restoration and protection. This hearing is timely because reefs around the world are suffering from overwhelming destruction and calamitous declines, and they need our attention and support.

We would also like to thank the Chairman and Mr. Abercrombie and the co-sponsors for their leadership in raising awareness at the Federal level of the plight of coral reefs by introducing House Concurrent Resolution 8 in the very early days of the 105th Congress and the first days of the International Year of the Coral Reef.

H.Con.Res. 8 supports the goals of the International Coral Reef Initiative and encourages improvements in many reef-related U.S. activities. American Oceans Campaign strongly supports these goals and hopes that through congressional commitment the means to accomplish these ends will be identified.

We would like to recommend that a final point be added to the resolution that would make a commitment to funding for research and monitoring and for better implementation and enforcement of provisions in existing statutes that would protect coral reef ecosystems. These statutes include the Clean Water Act, the Magnusen-Stevens Act, the Endangered Species Act, and the Coastal Zone Management Act and others.

We would like to also thank Congressman Miller for introducing House Resolution 87 just this week. This resolution seeks to protect coral reefs from destructive fishing practices. Harmful fishing methods such as cyanide and dynamite fishing and overharvesting of fisheries that are critical to coral reef health are two of the gravest dangers coral reefs face.

Mr. Miller's resolution directly confronts those threats and promotes replacing these fishing methods with methods that could sustain the fishery and the communities that rely on them.

The introduction of these resolutions gives the environmental community hope that a broader discussion of legislative protection for coral reefs will ensue over the course of this year. I have attached to my testimony a letter that is signed by many national, regional, and local groups asking for more congressional hearings on reef-related issues that would be held within the communities that rely on reefs for economic and environmental stability.

Stronger legislative initiatives and funding priorities could be the topic of these hearings. There are many legislative avenues available to Congress to help protect and restore coral reef ecosystems. Since the greatest threats to these reefs are the result of human action, regulation of those actions can reduce threats.

Water pollution, destructive fishing practices, poorly planned and managed coastal development, inappropriate trade practices, and lack of protection for threatened species can be addressed through new legislation or enforcement of current law. We need to build on the groundwork that Chairman Saxton, Mr. Abercrombie, Mr. Miller, and their co-sponsors have provided to develop enforceable, secure protection for coral reefs.

To illustrate how better enforcement of current law will protect reefs, let me discuss pollution in the Florida Keys. There is an influx of agricultural runoff in Florida Bay from South Florida and the Everglades. Coastal development continues in southern Florida which causes millions of pounds of sediment to flow into the ocean.

Development is also responsible for destroying the mangrove forests and seagrasses and coastal wetlands. There are thousands of sources of inadequately treated sewage poring onto the reef that come from cesspits, septic tanks, injection wells, inadequate treatment plants, and boats that are there to serve 87,000 year-round residents and 4 million tourists a year.

All of these activities can be controlled through legislation or enforcement of existing provisions of the Clean Water Act. Through oversight, Congress has the ability to emphasize provisions of the Clean Water Act that address standard settings, stormwater discharges, boat discharges, protection of wetlands and mangroves, and ocean discharges of sewage to the water that support reefs.

Through new legislation, Congress could strengthen coral reef protection by improving polluted runoff controls and emphasizing the special nature of reefs. Finally, Congress can give EPA and the states money to accomplish their Clean Water Act goals.

Fishing is another major threat to reefs. Some practices are destructive because they target creatures that fill critical biological niches. Sea urchins, who live on coral reefs, are a prize commercial fishery. They eat the algae and by grazing algae they keep it in check. When they are harvested from the reef, the algae grow out of control and smother the reef.

Under the Magnusen-Stevens Act, areas in reefs can be designated as essential fish habitat or made offlimits to this kind of destructive fishing. If certain areas of reefs were closed to fishing and these species which fill critical niches were protected, there is a better chance to save reefs, and everyone would have healthier fisheries over the long run.

In closing, American Oceans Campaign would like to express our appreciation to the sponsors of these congressional resolutions to

protect coral reefs. They have opened the door to ongoing dialog about stronger measures that can be taken by the Federal Government or on the State and local levels, and we look forward to more hearings and a continuing search for ways to ensure long and healthy futures for reefs around the world. Thank you for considering my testimony.

[Statement of Ms. Polo may be found at end of hearing.]

Mr. CRAPO. Thank you, Dr. Polo. And, Dr. Ginsburg, you are next.

STATEMENT OF DR. ROBERT GINSBURG, CHAIRPERSON, ORGANIZING COMMITTEE OF INTERNATIONAL YEAR OF THE REEF

Mr. GINSBURG. Mr. Saxton, Mr. Abercrombie, I am very pleased to testify on behalf of the International Year of the Reef which I am the Chairman of the Organizing Committee. And I would like to commend Ms. Polo for her efforts in bringing this forward and yours, Mr. Saxton and Mr. Abercrombie, for sponsoring it.

I think the best way to think about coral reefs is to realize that they are cities, and just as our cities are centers of creativity and diversity, so are coral reefs. And let me, with a few illustrations that you have I believe—the colored illustrations—show you what I mean about this analogy and how it helps us understand not only reefs but some of their problems.

If you look at the one marked A, you will notice that I am drawing an analogy. Do you have those, Mr. Chairman? If you look at A, you will notice that I am drawing an analogy between corals and apartment houses. And indeed there is a very clear one because the individual corals or polyps, of course, build their own apartment houses. And, of course, from a developer's point of view, it is a dream to have the inhabitants build their own apartments.

I would also like to call to your attention, and I am not going to have time to go through all the list of analogies between reefs and cities, the sponges that are like water purification plants, the fish that are like gardeners or dermatologists, and the urchins that are like maintenance men.

What I do want you to notice in illustration B is just as the location of cities is determined by geography, as in Miami and Boston and even Washington, the same is true for coral reefs. And that illustration of the Great Barrier Reef reminds us that reefs are best developed facing the ocean where they have a constant supply of fresh ocean water at constant temperature and salinity.

And that they are also best developed, for example, in the Atlantic on the east-facing sides of the ocean for the same reason. In other words, that is the preferred location for geographic reasons.

Now, in illustration C, I want to call your attention to hazards of reefs just as we have hazards for cities—earthquakes, floods, and so on. When the water gets unusually hot, as it does at the end of the summer, for example, in the Atlantic, we have a phenomenon of bleaching; that is, the corals lose their central symbiotic algae, and they turn white. Sometimes they recover, and sometimes they don't.

That is only one of the natural hazards like hurricanes and earthquakes that affect reefs, but there are plenty of people-in-

duced hazards, and one of them is down there as oil spills. And that really is substituting for a whole litany of people-induced problems, many of which we have already heard about this morning.

Now, the final next-to-last panel is number D in which, of course, I am calling attention to what we don't want; that is, ruins of reefs as ruined cities. In other words, no Rome, Carthage, or Chechanetsa. And also to remind us that corals are a kind of model for the future of our cities in the sense that they recycle wastes, and that they use solar energy.

Now, in the final panel that I have given you, number E, I want to show you an example of the kind of thing that we are doing under the aegis of the International Year of the Reef. And it concerns an area of particular interest to the United States, and that is what I call Reefs of the Americas.

All those little red areas outline the locus of cities—coral cities, tens of thousands of them. And if this were a hearing where the mayors of some of those cities came forward, they would be telling you about some of their problems, just as mayors of our cities tell you about problems.

For example, someone from Jamaica would tell you on the north coast of Jamaica that there has been a catastrophe in reef loss. The same would be true in Costa Rica where runoff has caused the death of reef, and so on. But what we don't know, Mr. Chairman, is the condition of the very large areas outside those small ones that I have mentioned in those large reef areas that are marked in red here.

And that is of major interest to us in the United States because, first of all, as you notice on the bottom of that thing, we have trade with those countries that amounts to $50 billion. We have tourism that amounts to something between $10 and $20 billion. And you will notice that blue band that goes through the Caribbean, that is the Gulf Stream circulation that brings larvae north to Florida. And 95 percent of our fish larvae come in that way.

So we have a very strong and vested interest in this area, and one of the things we hope to do during the Year of the Reef is assess the condition of all those reefs remote from centers of population because that will tell us if there are serious problems outside those we know where large populations are impacting coral reefs.

I wish I had time to tell you more about the educational activities that are so central to the Year of the Reef, but I see that my time is up. Thank you, Mr. Chairman.

[Statement of Mr. Ginsburg may be found at end of hearing.]

Mr. CRAPO. Thank you, Dr. Ginsburg, and the analogies you have shown are very interesting, and they do make a very good point. I look forward to questioning on this. Dr. Porter.

STATEMENT OF DR. JAMES PORTER, PROFESSOR OF ECOLOGY AND MARINE SCIENCES, INSTITUTE OF ECOLOGY, UNIVERSITY OF GEORGIA

Mr. PORTER. Thank you, Mr. Chairman, and Members of Congress. I would like to ask permission to show slides during my presentation if I may please.

Mr. CRAPO. Certainly you may. We just ask that you stay within the five minute time period.

Mr. PORTER. If someone could turn the lights down, we will just go ahead and begin. Coral reefs are very unusual structures because unlike most other animal communities, they are dependent on light. The reason they are dependent upon light is the symbiotic algal cells which live inside them.

The entire biology of reef-building corals and the survival of coral reefs depends, therefore, on many characteristics that are typical of plant communities and not strictly animal communities. Corals look like trees because functionally they are trees. They produce more oxygen than they consume.

And the color that corals have are not animal pigments but plant pigments. The green that you see here is chlorophyll. This is the essential character of coral reefs, and water quality is going to be critical to their survival.

We can measure the oxygen production and consumption by corals such as in this particular kind of chamber sitting on a coral reef in Florida. We are involved in a study of coral reef photosynthesis and respiration here in the Florida Keys on the 11th of September. And before I am finished with today's talk, you are going to understand why it was important where this work was being done, and why it was important the exact date.

Normally, corals produce a great deal of oxygen, and over a seasonal basis, they produce a nice curve of oxygen evolution. However, on September 11, 1993, the oxygen and photosynthetic capacities of the entire Florida reef track collapsed. Fortunately, that collapse lasted only a small while, and as time went on, it recovered its photosynthetic characteristics. We had absolutely no idea what was going on or special about September 1993.

But to understand this, you have to look at a nonintuitive aspect of coral reefs, and that is their connection with the rest of the world. And for those of you who are Members of Congress from nonmarine States or marine States or States bordering on the Mississippi River, this analogy and understanding will be of relevance to you.

This is a shot of the Mississippi River with Missouri and Illinois in 1992, and in 1993, as those of you know, there was an unprecedented increase in the amount of water in the river as historical levels of flooding occurred.

That water brought to the Mississippi and down and out into the Gulf of Mexico herbicides which were normally used for agricultural purposes such as atrazine, which is one of the major breakdown products of herbicides.

If you look at the Mississippi delta area before the—as the flooding occurred in a natural color shot, you can see this area here with the Mississippi coming in, and this next picture emphasizes atrazine and other hydrocarbons, showing that the Mississippi flooding brought not only riverwater, it brought other products to the Gulf area.

And that water didn't stay there in the Mississippi delta, but moved and arrived in the Florida reef track on September 11, 1993, where we recorded a tremendous collapse. And the point is here that we cannot just protect one environment. We have to protect all the environments which are hydrologically connected. And it also means that the people in this room who have no direct voting

representation in the State of Florida are nevertheless connected intimately to the health of that reef.

This is a picture from 1975 on the Carries Fort Reef, and the next picture you will see is 1985. And it shows a tremendous loss of coral. In this one area alone, some 95 percent of all the branching corals had died. These are the trees. This rainforest has been deforested. And you can also see another thing as you compare these two pictures. You can see the clear blue water there, and in 1985, its diminution on increase in the amount of particulates in the water.

These are the things that cut down the light. These are the things that are absorbed, and chlorophyll can no longer do its function. And what you see here is the distribution of murky water in Florida Bay because that murky water did not come from the Gulf Stream, but is coming from Florida Bay itself. It moves between the Keys and goes out onto the coral reef.

The agricultural and human practices in the south Florida region affect the water quality both in terms of the nutrients, nitrogen, and phosphorous, as well as the amount of turbidity. Some of this turbidity may be due to resuspension of sediments in the bay, but some may also be due to phosphate mining in west Florida, or contribution of nutrients from the Florida Everglades agricultural district, and also from nutrients being put out into the reef area from the Keys themselves.

And there are many things that we don't understand—mysterious diseases. Last year I described the origin and evolution of white pox. These parrot images that you see here are from the Key West area, and they show that between 1995 when this picture was taken and 1996, almost 80 percent of that coral reef died from a mysterious disease.

Whether these are or are not related to the water quality problems in Florida Bay is not known at this particular time. We don't know whether this is a virus, a bacterium, or a fungus, and we are investigating this at this time.

But I leave you with this message. There are very few natural laws, but one of them is everything is connected to everything else. Everything goes somewhere. We are on one earth that is hydrologically connected, and whether you are from Pennsylvania or from Ohio or from Florida itself, the things we do and the decisions we make in these halls of Congress are going to affect the survivorship of the most diverse environment on earth. Thank you.

[Statement of Mr. Porter may be found at end of hearing.]

Mr. CRAPO. Thank you, Dr. Porter. We appreciate that timely message. And I thank the panel for their testimony. I want to remind both of us that are here that we have a five-minute limit on our questions, and I will start out. I just have a couple of quick questions, and any of you could answer this for me.

I am from Idaho, and I am learning how nonreef States or States that aren't involved, as you show in your presentation, can be very concerned and have input. There is a lot of talk about the fact that our reefs are in a state of crisis. Is that a unanimous opinion among the experts, or is there a dispute among the experts about that conclusion?

Mr. PORTER. I think I better answer that. Between 1981 and 1992, we surveyed six reefs quantitatively using the kinds of photographic imagery that you saw there. Of the six reefs, five declined at an average rate of four percent per year with a maximum rate of 10 percent per year. The reef that declined at a rate of 10 percent per year will be gone in less than a decade.

Now, the question is is that a universal truth throughout the Florida Keys. And in response to that, the Environmental Protection Agency has funded a monitoring study which I am involved in which extends throughout most of the Florida Keys, but unfortunately at this point in time, does not include either national park holdings of the Biscayne National Park or the dry Tortugas.

And one of the things I would love to see Congress do is to get the agencies to rip off their institutional badges and get the end members of this monitoring program funded. That study started a year ago, and within two years of this date, I will be able to answer that question definitively for an ecosystemwide survey. But I can tell you right now the only ones we have any data for are showing decline.

Mr. CRAPO. And that is in Florida?

Mr. PORTER. That is in Florida.

Mr. CRAPO. OK. And, Dr. Ginsburg, is that something that might be more generally——

Mr. GINSBURG. I think the jury is still out, and that, in fact, was my point, that, for instance, if we just look at the western Atlantic, we know quite a lot about reefs in Florida, quite a lot about reefs in Jamaica and Panama and a few other places. But if you look at the very large areas of reefs in the Bahamas, in Belize, and in Yucatan, we really do not know very much about their condition.

So I personally am hopeful that we are not going to find that they are in serious decline, but I think we really must find out about what is happening to those reefs that are remote from centers of population and immediate stress, not to say that they are immune from overfishing and exploitation, you know, by ship.

But if we talk about obvious and immediate declines, I don't think we know in the Atlantic, and I think there are large areas of the Pacific where we are just beginning to get that kind of information.

Mr. CRAPO. All right. Thank you. And, Dr. Porter, you briefly touched on the white pox disease.

Mr. PORTER. Yes.

Mr. CRAPO. Is that disease or do we know what causes that disease? Is it human induced or human-induced factors a relevant part of the problem?

Mr. PORTER. We don't know the answer to that. We do know that actually the Key West area has seen the origin of four diseases. We have no idea if something about the water quality in that area promotes a stress of individual corals to the point that they are more susceptible to natural disease, but the white pox is the first time it has been seen, and it is described in that area. We simply don't know.

Mr. CRAPO. Is this disease geographically limited to the south Florida area?

Mr. PORTER. There is a report in Puerto Rico of a disease that upon verbal description sounds like what we have documented in south Florida. But at this point in time, I believe that it is confined to the south Florida area.

And the question that we have right now is is it going to spread beyond those reefs in Key West that are currently affected. I have never in my entire 25-year career seen any biological agent destroy a reef as fast as that disease. And if it spreads, we are in real trouble.

Mr. CRAPO. And is the impact of this disease permanent? In other words, can a reef or do we know whether a reef can recover from this disease?

Mr. PORTER. Within a human lifetime, that reef will never recover. And how many human lifetimes are required, I cannot say.

Mr. CRAPO. All right. Thank you very much. I am finished with my questions. Mr. Abercrombie.

Mr. ABERCROMBIE. Yes. Thank you. Dr. Porter, you indicated or rather you were here I believe during the testimony when I made previous mention of the article in the Washington Post magazine within which you were quoted.

Mr. PORTER. Yes.

Mr. ABERCROMBIE. Are you familiar with that article?

Mr. PORTER. Yes, I am.

Mr. ABERCROMBIE. Someone managed to send it to you and said look, "You are in the papers," right?

Mr. PORTER. Yes, they did. Yes.

Mr. ABERCROMBIE. And you weren't indicted or anything. No.

Mr. PORTER. That is right. Good news from Washington.

Mr. ABERCROMBIE. Right. But there was—I do want to clear this up. There is no reference to this statement. It said, "But as research continued, white pox and other new diseases are spreading in ways that portend poorly for reefs elsewhere in the world. Black band, which was once confined to the Caribbean, has begun to infect corals in Hawaii." Are you familiar with where that statement came? I was——

Mr. PORTER. No.

Mr. ABERCROMBIE. [continuing]—unable when I contacted people in Hawaii to get much confirmation of that.

Mr. PORTER. No, sir. I didn't know that black band is located in Hawaii. Black band is actually a combination of a blue-green algal infection and a sulphur bacterium infector. And I am unfamiliar with that as well for the Hawaii area, but Dr. Richard Greg, who is head of Seagrant, would know.

Mr. ABERCROMBIE. Yes. Right. OK. Because I don't want to get—we do not want to get into scare routines either. We need good information so that we can deal with things correctly and sensibly. One of the interesting points to me was apparently a colleague of yours in the sense of someone who was concerned and who had a personal commercial interest, Craig Corollo. I am not sure——

Mr. PORTER. Yes, sir.

Mr. ABERCROMBIE. [continuing]—that I am pronouncing his name correctly.

Mr. PORTER. That is correct.

Mr. ABERCROMBIE. A Key West diver. He comments in the article on something that made some sense to me, and I think that you indicated, Dr. Ginsburg, in your slides about hot areas or for lack of a better phrase, and that some of the diseases turned up in this hot spots. And this can come where you have outfalls for sewage and that kind of thing. Is that correct? Either one can answer.

Mr. GINSBURG. I don't think so, no. I don't think there is any clear connection. The bleaching, the loss of the symbiotic algae, seems to coincide with areas with periods during the end of the summer, at least in the Atlantic, when the winds are light and the temperature increases above 30 degrees centigrade.

Mr. ABERCROMBIE. That is a natural phenomenon though. Right?

Mr. GINSBURG. That is a natural phenomenon. Exactly.

Mr. ABERCROMBIE. But we are talking about those things which human beings may do which add to the water temperature. Right? Discharges of various kinds or——

Mr. GINSBURG. That would be rather hard. The only thing that might occur is around an outfall for an atomic energy plant.

Mr. ABERCROMBIE. Well, then that moves me to the point that Mr. Corollo was making. He was looking at water color, which I think has more to do with degeneration of the quality or purity of the water, and that that could be a factor in degeneration of reefs?

Mr. GINSBURG. It could I think locally, and Dr. Porter may address that as well. Any stress I think—people are inclined to think any localized stress could result in this phenomenon of bleaching and might even contribute to disease. But I defer to Dr. Porter about that. I think he is a little more familiar than I am.

Mr. ABERCROMBIE. Could you——

Mr. PORTER. Mr. Corollo was actually using the word hot zone as a concentration of diseases and not indicating the temperature of the water.

Mr. ABERCROMBIE. I see.

Mr. PORTER. Right now what we have is a geographic correlation, a correlation of an area of high human impact, that is Key West, and the distribution of new and unknown diseases. That correlation is not causation. We do not know whether the human activity in the Keys is the origin of these new diseases.

Mr. ABERCROMBIE. It may be contributing though? I can't imagine——

Mr. PORTER. It easily could.

Mr. ABERCROMBIE. [continuing]—that runoff doesn't contribute.

Mr. PORTER. And it could weaken the corals. You see, particularly the problem of the photosynthetic nature of corals, the deterioration of the water column doesn't need to be some sort of horrible chemistry. It can simply be a diminution of the amount of light that stresses the coral and makes them more susceptible to disease.

Mr. ABERCROMBIE. But I am worried about in areas like Hawaii as we have always relied on a couple of things—trade winds—in other words, we don't have pollution. Well, of course we have pollution—air pollution, but it gets blown away because of the trade winds. So if you can't see it, then we don't have it.

And I am worried as well that where the water is concerned that we have very strong tides, tidal movements, various currents be-

tween the islands that tend to move things around. But I am worried that the more—if you simply dump more sewage, waste, runoff of various kinds keeps cascading into the ocean, there may come a point when the tides, the currents, et cetera, are not going to be sufficient to disperse it into the rest of the ocean so that we can kind of escape what we are doing.

Mr. PORTER. That is definitely correct. And if you remember from one of my slidesshowing the elevated pollution in Florida Bay, we are talking about an area of 1,000 square miles.

Mr. ABERCROMBIE. So, in other words, we have to be very concerned in this Year of the Reefs—it makes us focus on oceans, that ocean pollution simply because the planet is about three-quarters water doesn't mean that we are going to be able then to continuously discharge foreign elements, if you will, nutrients, et cetera, waste, into the ocean and expect that it is so large, so huge that it will simply be able to disperse everything that we are putting into it, and there will be no degradation of the water environment?

Mr. PORTER. That is absolutely correct.

Mr. ABERCROMBIE. OK. I think that that about does everything, Mr. Chairman, except for one thing. I would like to acknowledge the presence in the audience of a young man who is trying to decide whether he wants to be an environmental engineer.

And I said that if he came in and listened particularly—no offense to you, Ms. Polo, on this—but particularly listen to Dr. Ginsburg and Dr. Porter, that it might—he might conclude that, in fact, is what he would like to do—Allen Yu from St. Louis High School in Honolulu. There you are. He can see today that we actually do things in these hearings which advances our knowledge certainly legislatively, and I hope intellectually as well, so that we can make good decisions.

And I want to thank you personally for the clarity of your presentations. And, Dr. Porter, in particular, I want to say that I commented to Mr. Crapo that it is too bad that the rest of the Members not only of this committee but of the Congress couldn't see your presentation. If you could put that together in the same form as——

Mr. PORTER. Yes. I can do that.

Mr. ABERCROMBIE. [continuing]—Dr. Ginsburg did here—it is somewhat the same form—I am sure the Chairman would agree that we could get it to the rest of the committee. I thought it was an impressive demonstration of the interconnectedness of elements that affect us all.

Mr. PORTER. Thank you, sir.

Mr. ABERCROMBIE. Could you do that?

Mr. PORTER. I certainly will do that.

Mr. ABERCROMBIE. And I am sure the Chairman would agree. I can't speak for him, but it would be very valuable for us, and it will be taken into account. Mr. Chairman, thank you for your consideration. Oh, and I have one request. Mr. Chairman, Mr. Miller has a statement on H.Con.Res. 8, and I would like to seek a unanimous consent to have it introduced into the record.

Mr. CRAPO. Without objection, so ordered.

[Statement of Mr. Miller follows:]

STATEMENT OF THE HON. GEORGE MILLER, A U.S. REPRESENTATIVE FROM CALIFORNIA

Mr. Chairman, I'm very pleased that you are holding this hearing today to discuss the crisis that coral reefs are facing worldwide. I commend you for introducing H.Con.Res. 8, of which I am an original cosponsor. On Monday, I introduced a resolution, H.Res. 87, that condemns destructive fishing practices that are causing severe damage to coral reef ecosystems, particularly in southeast Asia, and urges the United States and the United Nations to promote sustainable development of coral reef resources. I see this resolution as complimentary to yours: It focuses on a particular problem that I am concerned about, one which I believe we can and should address in the short term, while continuing to work on the longer term issues which your resolution addresses.

Coral reefs are vital to the environment and the economy of many island and coastal nations. They are among the most biologically diverse and productive ecosystems on earth, rivaling the tropical rainforests on land. The hard structure of the reef is built up over thousands of years by the secretions of the tiny living coral animals. So, a coral reef is truly a living structure. And, as a living structure, thousands—perhaps millions—of individual coral animals are dying and others are taking their place on the reef at any one time.

The problem is that now human activities have shifted that balance and coral reefs are dying off at an alarming rate worldwide. Corals are very sensitive to water pollution, sedimentation, damage from boat groundings, and even simple physical contact by divers. These largely inadvertent injuries are a significant cause of the well-documented decline of coral reefs worldwide. Coral reefs are, in a sense, the canary in the coal mine of the oceans.

A great deal of injury is being inflicted on coral reefs, mainly in southeast Asia, through easily preventable, largely illegal fishing techniques. Cyanide, other poisons, and surfactants like dish washing liquids, are being used to stun and capture fish for the aquarium trade and for the live food fish trade. These chemicals kill nearby coral, and divers scrambling to get fish out of nooks and crannies in the reef often inflict further damage on the reef. Although illegal virtually everywhere, dynamite is still being used on some reefs to stun or kill fish. Afterwards, they float to the surface where they are easily harvested. The effect on the reef is obviously devastating. Most of the aquarium fish captured in this way end up in hobbyists' tanks in the United States. Most of the live food fish end up on plates in the homes and restaurants of southeast Asia.

Although the State Department, NOAA, Department of the Interior, and other agencies are working, through the International Coral Reef Initiative, to identify and reduce threats to coral reefs, they need our help. These kinds of unsustainable fishing practices would not be occurring if powerful market forces were not at work. U.S. and Asian consumer demand for reef fish is, in part, driving the destruction of coral reefs. Yet how many aquarium hobbyists would purchase a wild-caught reef fish if they truly understood that in doing so, they were aiding the destruction of the reef environment that they sought to reproduce in their tank. Furthermore, if affordable alternatives to wild-caught fish were available, wouldn't the educated consumer choose them? This has worked very well in the exotic bird trade; we could do the same for reef aquarium specimens.

Many of the countries where the reefs are being destroyed—Indonesia, Malaysia, the Philippines, and others—have laws on the books protecting their reefs. But there is little money for enforcement, and the more lucrative the market, the more people are willing to risk the penalties in any case. So the keys are information and education. Only by identifying these destructive practices and the consumer demands that drive them can we begin to eliminate or modify them. And only through the development of sustainable coral reef fisheries can the reefs be saved.

Both of these resolutions share a common purpose. They are intended to bring the global plight of coral reefs before Congress, raise the level of awareness of policy makers, and ask us to do more. The scientific and environmental communities have declared 1997 the International Year of the Reef. We cannot stop ships from running aground on reefs and we may not be able to stop global warming. But what better time for us to pay attention to the many problems plaguing coral reefs, and seek practical solutions to those threats that we can address. If we don't do something soon, there may not be any reefs left to save.

In that spirit, I hope we can work together to bring both of these resolutions before the House soon, and I look forward to hearing the testimony of the witnesses today.

Mr. ABERCROMBIE. Thank you so very much.

Mr. CRAPO. Thank you very much. And before we conclude the hearing, I did have one final question of Dr. Porter—just a very quick question, and that is is there any knowledge or any information about whether the white pox disease could be the result of the introduction of a nonindigenous species to the reefs?

Mr. PORTER. We don't know about that. It is a very interesting question because, in fact, it has been suggested that the sea urchin die-off in the Caribbean resulted from the introduction of a disease from the Indo-Pacific, which in its own habitat was not virulent, but in the new habitat of the Caribbean, where no resistance had evolved against it, became devastating. It is very much within the realm of possibility.

Mr. CRAPO. All right. Well, again, thank you very much to all of the witnesses on the panel. The information has been very helpful, and if there is no further business, I would again thank and excuse the panel. And this Subcommittee would stand adjourned.

[Whereupon, at 1:00 p.m., the Subcommittee was adjourned; and the following was submitted for the record:]

STATEMENT OF DR. TERESA M. TELECKY, DIRECTOR OF THE WILDLIFE TRADE PROGRAM, THE HUMANE SOCIETY OF THE UNITED STATES

Good morning, Mr. Chairman and members of the Subcommittee. Thank you for providing The Humane Society of the United States (HSUS) with an opportunity to testify on H.R. 39, the African Elephant Reauthorization Act of 1997.

I am Dr. Teresa M. Telecky, Director of the Wildlife Trade Program for The HSUS, the nation's largest animal protection organization, with more than 4.1 million members and constituents.

Mr. Chairman, The HSUS wishes to emphasize its unqualified support for the African Elephant Conservation Act and its reauthorization at the level proposed in H.R. 39.

By way of illustrating the reasons that The HSUS supports the Act, we wish to remind Members of the Subcommittee of the circumstances under which the Act was passed. In 1987 when Congress first considered the Act, and in 1988 when the Act was passed, Americans had become alarmed by reports on the rapid decline of African elephant populations due to the ivory trade.

Elephants numbers had dropped from about 1.3 million in 1979 to only 700,000 by 1988 and were declining by about ten percent per year; by 1989 there were only about 600,000 elephants; today there are between 286,234 and 543,475 African elephants remaining, according to the IUCN/SSC African Elephant Specialist Group.

In 1986 approximately 100,000 elephants were killed to satisfy the worldwide demand for ivory and at least 10,000 of those were used to supply the ivory for jewelry and other trinkets purchased by American consumers.

Elephants had virtually disappeared from some areas of Sudan, Chad, the Central African Republic, and Zaire. In the Selous Game Reserve in Tanzania, elephants declined by 50 percent between 1977 and 1986; in Tsavo National Park in Kenya there was a 75 percent decline between 1972 and 1988.

The average weight of a tusk being exported from Africa had declined from 35 pounds in 1979 to only 13 pounds in 1988, indicating that poachers were turning to younger and younger elephants, a particular concern since elephants do not reach sexual maturity until their early teens and then reproduce very slowly. In 1988, about 10-15 percent of tusks exported weighed less than 1 pound—tusks of infant elephants. Entire generations of older elephants were being wiped out by the ivory trade.

The Parties to the Convention on International Trade in Wild Fauna and Flora (CITES) had, in 1985, instituted a "CITES Ivory Control System" (System) to regulate the ivory trade through marking of ivory and establishment of country-specific ivory export quotas. However, by 1988 the System was clearly failing to halt poaching and illegal trade because it was not implemented and enforced by CITES Paries. Experts agreed that about 80 percent of ivory in trade in 1988 was taken from poached elephants.

The prices paid for ivory increased from $2.25 per pound in 1960 to $68 per pound in 1988, indicating that ivory was being used as a commodity, like gold and silver, as a hedge against inflation. Elephants were being victimized by an upward spiral of supply and demand: the higher the price, the more elephants were slaughtered.

Mr. Chairman, as you know, the African Elephant Conservation Act was passed primarily to address the ivory trade that was clearly, irrefutably driving elephants to extinction.

The Act, while expressing a desire to give the CITES Ivory Control System a chance to work, put in place a mechanism whereby the United States could unilaterally decide to stop the importation of ivory into the United States if it was discovered that this System was failing to control the ivory trade. In June 1989, eight months after the Act was passed, the Bush Administration imposed a ban on the importation to the U.S. of African elephant ivory under the provisions of the Act. At the time, the U.S. was one of the major markets for elephant ivory; about 30 percent of the ivory in trade was consumed by Americans.

This preceded by four months, and made a significant political contribution to, a decision by the more than 100 Parties to CITES, including the majority of African elephant range states, to ban the international commercial trade in ivory in October 1989. The reason that the Parties decided to ban the international commercial trade in ivory was that, despite an internationally coordinated CITES Ivory Control System, the trade proved uncontrollable and was driving elephants to extinction. The ivory trade was uncontrollable because it is highly lucrative for dealers who are highly organized, heavily armed, and well-connected to politicians who look the other way for a price; because elephants are largely unprotected in most of Africa and are so easily poached; and because Africa's destitute poverty makes it easy for dealers to find people willing to risk their lives to poach elephants. The ivory trade harmed both elephants and local people, while making a few ivory dealers and corrupt politicians rich.

At the meeting of the Parties to CITES in 1992, African elephant range states, whose lead was followed by other Parties, rejected proposals to resume the deadly ivory trade. At the most recent CITES meeting, in November 1994, African and other Parties again rejected a similar proposal, and some stated their concern that down-listing elephants from CITES Appendix I to Appendix II for trade in any elephant products would stimulate real or speculative elephant poaching for ivory which, due to lack of resources, they would be unable to control.

The ban, which was passed with the support of most African elephant range states, and which is still supported by most African elephant range states, has been largely successful in stopping the dramatic decline of the African elephant. Although elephant poaching and illegal ivory trade still occur, it is in minuscule quantities as compared to the levels when the ivory trade was legal and provided a cover for the illegal ivory trade. The naysayers who predicted that elephant poaching would continue, or even increase despite the ban, were proven wrong.

Despite the demonstrated success of the listing of the African elephant on CITES Appendix I, three southern African countries have proposed to resume the deadly ivory trade. Zimbabwe, Botswana, and Namibia have proposed down-list their populations of the African elephant to CITES Appendix II in order to sell their ivory stockpiles to Japan, as well as to engage in commercial trade in live elephants and elephant trophies. Zimbabwe, but not the others, has also asked for permission to trade in ivory souvenirs and elephant hide. Their proposals will be considered at the tenth meeting of the Conference of the Parties to CITES, to be held in Zimbabwe in June 1997.

If passed, these proposals have the potential to return us to the days when more than 200 elephants a day were slaughtered for the illegal ivory trade—to the conditions that promoted passage of the African Elephant Conservation Act.

Any change in the listing of the African elephant under CITES—even if it is for trade in live animals, trophies, souvenirs, or hides—will be seen by elephant poachers, ivory dealers, and consumers as a sign that the ivory trade ban will soon be relaxed. As evidence of this, elephant poaching increased in Kenya and other countries in the months preceding each CITES meeting since 1989 because poachers hear about CITES proposals regarding African elephants. Indeed, just a few months ago, over 200 elephants were found massacred in the Congo, their tusks removed. Down-listing elephants for any reason is the proverbial nose under the tent that will send poachers into the brush for elephants. Ivory from poached will be stockpiled as an investment by dealers who will await the day when CITES will open the trade.

Indeed, under CITES, a Panel of Experts was sent to each of the three southern African countries as well as Japan to assess the status and management of the elephant population concerned; the ability of the countries concerned to control the

ivory trade; and the control of the trade in non-ivory products. The Panel's report, which was released in February, recognized that legalizing the import of ivory to Japan may make it easier to trade illegally; that poachers and dealers may increase activities in anticipation of a future expansion in ivory trade; and that there may be a decline in anti-poaching effort and morale amongst law enforcement staff, because of confusion about why legal trade in ivory is acceptable.

The Panel concluded that:

"Control over ivory stocks in Botswana are inadequate." "It may not be possible to determine the origin of much of the ivory in the stockpile." There continues to be illegal "movement of ivory through Botswana" to South Africa.

Controls over ivory stocks in Namibia need improvement and there is evidence that some ivory is moving illegally through Namibia to South Africa.

Law enforcement in Zimbabwe "with respect to the ivory trade has been grossly inadequate." The Department of National Parks and Wild Life Management "has permitted the establishment of large-scale ivory carving operations, which are selling commercial quantities of semi-worked ivory intended for export to Asian countries, including Japan, People's Republic of China and Thailand." "Officials in the Customs Department declared that they had no interest in controlling ivory exports." Information from South African authorities "indicates that a large proportion of illegal ivory arriving in South Africa has passed through Zimbabwe." "Zimbabwe has poor control over trade in elephant products other than ivory."

Control of ivory stocks in Japan "needs improvements for parts of tusks. The software of the [Japanese authority] database must be improved to allow monitoring of the stocks." "The control of retail trade is not adequate to differentiate the products of legally acquired ivory from those of illegal sources. With the system as currently implemented, it is unlikely that the import of partially worked ivory (e.g. *inzais*) could be reliably detected. More inspections are needed, including physical checking of the stockpiles. A method needs to be devised to allow the verification of scraps and wastes produced."

In addition, if passed, the proposals will also allow these countries to clear out their ivory stockrooms in order to make way for new ivory from culled elephants. Both Botswana and Zimbabwe claim enormous problems with human-elephant conflict and growing elephant populations which are causing people to ask for a political solution to crop-raiding elephants. In culling operations, entire elephant families are gunned down; traumatized infants are pulled away from their dying mothers and sold to circuses and zoos. The ivory is stockpiled, hide sold to make shoes and briefcases, and the meat is sold to crocodile farmers. The HSUS opposes elephant culling as a means to control elephant populations and offers a humane alternative, which we will address in the second half of our testimony.

Mr. Chairman, The HSUS also fully supports the portion the African Elephant Conservation Act that has sets up the African Elephant Conservation Fund to support projects on research, conservation, management, or protection of African elephants. However, we have concerns about some of the types of projects funded under the Act which we will elaborate on in detail in our testimony. But first, I would like to describe for you some of the conservation, protection and research projects related to African elephants that are currently funded by The HSUS.

In 1993, we provided a $10,000 grant to the Owens Foundation for Wildlife Conservation for their work on the North Luangwa Conservation Project (NLCP) in Zambia and we have continued to leverage about $30,000 for the Foundation each year through private granting agencies. The HSUS considers the NLCP to be a model program for combining wildlife conservation with development of rural African communities without resorting to consumptive use of wildlife.

In 1986, Mark and Delia Owens established the NLCP to rehabilitate, conserve and develop the 2,400 square mile North Luangwa National Park in Zambia. At that time, 1000 elephants were being killed in the Park each year by commercial meat and ivory poachers. In the previous 15 years, up to 100,000 elephants had been poached in the Luangwa Valley. Wild fires set by poachers had burned over 80% of the Park's vegetation every year. If left unprotected, North Luangwa would be sterilized by 1996.

The Zambian government had limited resources to protect or develop the Park. Therefore, the Owenses' first priority was to decrease poaching by improving the efficiency of the government Game Scouts. New equipment, housing, training and incentives were provided to the Scouts. After working closely with these men for years, the North Luangwa Scouts have been declared the best in Zambia.

At the same time the Owenses developed a plan to involve the local people in the conservation of their greatest resource, their wildlife. Poaching was the primary industry in the area, providing more jobs and more sources of protein than any other. Therefore, the Owenses began a Community Development Program of the NLCP

that established small sustainable businesses that offer basic goods and services to the local people and provide alternative legal jobs to poachers. These services are not a free hand out. Each business is based on the free enterprise system and the initial start-up loan must be repaid to the project so that new businesses can be started in the village.

In the past, many of the villagers could obtain ground corn, their staple diet, only by trading poached meat for it. Now the NLCP grinding mills provide this service for pennies and, at the same time, offer employment to millers, mechanics and bookkeepers. Villagers used to poach bush meat to trade it for cooking oil, a much prized commodity in rural Africa. NLCP has taught them to grow sunflower seeds and press oil using simple seed presses. Again, poaching is replaced by sustainable legal trade. Other cottage industries that have provided jobs, food or services to the local people are carpentry shops, sewing co-operatives and cobbler shops. In some villages, small shops are opened to provide simple goods to villagers such as matches, soap and salt. Farmers are assisted with seed loans, transportation and technical assistance. More than 2000 families in the NLCP target area are benefiting from NLCP's Community Development and Agricultural Assistance Programs.

The Owenses established the NLCP Conservation Education Program in fourteen remote villages near the National Park. Many students had never seen a color photograph and schools lacked the most basic supplies. The NLCP Education Officer visits schools monthly, weather permitting, offering a 500 volume mobile library, curriculum guidelines, school supplies, wildlife slide shows (powered by a gasoline generator), lectures, projects and contests. Forty-eight American schools participate in a conservation oriented exchange program with NLCP's students, exchanging letters, art work, reports and essays. American schools sent school supplies, books and donate magazines. These Zambian students will not grow up to be poachers.

NLCP's Rural Health and Family Planning Program teaches hygiene, first aid, preventative medicine, family planning and advanced clinical techniques to village medics. NLCP has trained and equipped 48 "Traditional Birth Attendants" to assist the pregnant women in the villages near the Park. The Attendants also teach AIDS prevention, early childhood development and nutrition to the women of their villages.

The ultimate goal of the NLCP is to ensure that tourism development in North Luangwa National Park will have a low impact on the environment and return revenue to the local villagers. Once the local villagers are benefitting legally from the National Park through tourism, there will be even less incentive to poach. The Owens have worked with the Zambian government to develop a plan for tourism in the Park.

The NLCP has been very successful. When the Owenses arrived, 1000 elephants were being poached each year. Since September of 1994 not one has been poached. However, after nearly six years of almost complete protection, the elephant population of North Luangwa has not increased. This argues strongly for continued protection for the African elephant under a CITES moratorium on trade in elephant parts and continued funding by the U.S. government for research, management, protection, and conservation of African elephant populations. Twenty elephants have been collared with radio transmitters and aerial data is being obtained to chart their movements, habitat usage, and more.

Likewise, the people near the Park no longer have to poach to feed their families. Over 2000 families, many of whom were once involved with poaching, now have legal, sustainable jobs. Leaders from villages outside the NLCP range are now coming to the Owenses and requesting their advice on how to start programs such as those implemented by the NLCP.

It is sad to note that, although for many years the Owens Foundation has applied for funding for the NLCP from the African Elephant Conservation Fund, and has apparently met all of the criteria for funding under the Act, the project has inexplicably not been funded to date. The NLCP operates on a comparatively small budget of approximately $500,000 per year, which is provided by the Frankfurt Zoological Society of Germany and the Owens Foundation for Wildlife Conservation. This is a successful project, which is conserving wildlife, including elephants and helping people, is worthy of funding under the Act.

In January 1997, HSUS along with Humane Society International (HSI), signed a US$1 million, five-year agreement with the National Parks Board (NPB) of South Africa to conduct a study on the use of contraception as a means for controlling reproduction in elephants and humanely controlling the size and growth of elephant populations. Additionally, under the agreement, The HSUS/HSI will develop, promote and conduct ecotourism programs in South Africa. The NPB will undertake to extend the range of elephants in South Africa and will use the contraception program to control elephant population sizes if it is shown by research to be safe, fea-

sible, economic, and appropriate. Additionally, the NPB will examine and implement other means of reducing conflicts between elephants and other wildlife and human interests, including fencing, and translocating elephants to other parks and protected areas in South Africa.

The elephant contraception experiment is being conducted in Kruger National Park, which is home to over 8300 elephants. Within the Park's fenced boundaries, rangers have culled about 600 elephants each year in an attempt to maintain a population of 7500 elephants. But widespread opposition to culling has led South Africa to consider alternative means for controlling elephant populations and providing more habitat for elephants. In May 1995, after a public debate on the Kruger National Park's elephant management policy, the NPB undertook a review of that policy. The NPB announced that no elephants would be killed in Kruger National Park in 1996, although the NPB retains its policy to allow elephants to be killed when necessary as a last resort. The moratorium has been extended through 1997.

The HSUS/HSI is sponsoring the program which is being conducted by a team of scientists from Zoo Montana, the Medical College of Ohio, the University of Georgia, and the University of Pretoria in South Africa. Dr. Jay Kirkpatrick, HSUS consultant for contraception and director of science and conservation biology at Zoo Montana, is leading the scientific research team. These organizations have joined with the South African NPB to administer a contraceptive vaccine to elephants in Kruger National Park.

This vaccine, the PZP (*porcine zona pellucida*) immunocontraceptive vaccine, was first developed in the 1970's, and works by stimulating the immune system to produce antibodies that block pregnancy. Since its development, PZP has been tested and adopted by the National Park Service for management of wild horses on Assateague Island National Seashore, Maryland; successfully tested by The HSUS and the Bureau of Land Management on wild horses in Nevada; successfully tested by The HSUS in collaboration with the National Park Service on white-tailed deer at Fire Island National Seashore, New York; and is currently being used on over 90 species in 60 zoos and aquaria throughout the world.

Before allowing this technique to be tested on wild, free-ranging African elephants, the research team vaccinated three female zoo elephants with PZP. These elephants, which were not mated, showed the strong immune response to the vaccine that is required for successful contraception. Before taking the vaccine into the field, the research team also showed that antibodies produced in response to the PZP vaccine would prevent sperm from attaching to elephant eggs in the laboratory.

Between October 2 and 12, 1997, the research team and staff from Kruger National Park captured, radiocollared, and treated with PZP 21 adult female elephants in Kruger. Twenty additional animals were radiocollared but left untreated to act as controls. Before treatment, non-pregnancy of each animal in the study was confirmed with ultrasound. In November, the 21 experimental animals were successfully given booster shots using PZP-containing darts fired from an airborne helicopter. Currently, the research team plans to deliver a third shot to treated elephants in May or June 1997. We emphasize that, for the purposes of this research, once the elephants have been marked the vaccine can be delivered without ever capturing them again.

Unfortunately, there has been some confusion between The HSUS/HSI sponsored immunocontraception project and a concurrent elephant contraception project being carried out in Kruger National Park by a German team from the Institute for Zoological and Wildlife Research in Berlin. This team placed implants containing a six-month supply of the steroid hormone estrogen in the ears of a sample of adult female elephants. The HSUS/HSI and our research team strongly opposed this project, because, among other reasons, we believed that the estrogen implants would lead to prolonged and sustained estrus in implanted females. We have received preliminary reports from our colleagues at the University of Pretoria that just such an effect is being seen among the elephants treated by the German research team. We stress, however, that no such indications have been reported for the PZP-treated elephants.

By late 1997 or early 1998, our research team will carry out pregnancy tests on the PZP-treated and untreated control elephants to determine the effectiveness of the PZP immunocontraceptive vaccine.

Should the vaccine prove effective as an elephant contraceptive, there are several reasons that it could be a useful management tool for free-ranging elephants. First, it can be delivered directly from the air without capturing the elephant. Second, the vaccine itself should be relatively inexpensive to produce. Third, non-pregnant females can be distinguished from the air with 85-90% accuracy by the age of calves accompanying them, a technique whose effectiveness was confirmed with ultrasound during the initial captures. Clearly, further research would be required to refine the

vaccine, assess its effects on elephant health, reproduction, and behavior, and develop efficient techniques for delivering the vaccine to significant numbers of elephants.

Nevertheless, The HSUS/HSI feels that the PZP immunocontraceptive vaccine offers the promise of a practical, cost-efficient, humane alternative to the barbaric practice of destroying these magnificent, sensitive, and complex animals.

Finally, Mr. Chairman, in reviewing the African Elephant Conservation Fund, The HSUS is distressed to learn that monies from the fund have been used to support the Communal Areas Management Program for Indigenous Resources (CAMPFIRE) in Zimbabwe was directly supported by an $85,000 grant from the African Elephant Conservation Fund to Safari Club International. The HSUS is opposed to the use of funds from the African Elephant Conservation Act to support CAMPFIRE for the following reasons.

CAMPFIRE has used money from the U.S. government to lobby the U.S. Congress to weaken the Endangered Species Act so that more endangered and threatened species may be imported to the United States for commercial and other purposes.

CAMPFIRE promotes the resumption of the international trade in ivory. The U.S. has publicly opposed the resumption of the ivory trade since 1989. The Department of the Interior should not pay other organizations to directly oppose its own programs.

CAMPFIRE is based primarily on elephant trophy hunting, an activity that is opposed by 84% of Americans (according to December 1996 nationwide poll conducted by Penn & Schoen Associates Inc.). The same percentage of Americans oppose U.S. foreign assistance being used for this purpose. None of the scarce funds available under the African Elephant Conservation Act should be used to promote or enable elephant trophy hunting. Trophy hunting is an industry like any other that should not receive government subsidies in the guise of conservation.

CAMPFIRE is environmentally unsound. An independent contractor hired by the U.S. Agency for International Development (USAID) to evaluate CAMPFIRE found that the program is "notoriously weak in its environmental assessment of potential impacts resulting from the project"; that there was a lack of quantitative assessments of the health of wildlife populations and the impact of the project upon them; and that the methodology used to monitor wildlife populations was "questionable". The World Wide Fund for Nature in Zimbabwe reported in 1995 that, "in order to sustain good quality elephant hunting, off-take quotas ideally should not exceed 0.7 percent of the estimated total population ... when the number of elephants killed as problem animals is added to those taken during sport hunting, the total offtake amounts to 1.03 per cent, clearly exceeding the level which would ensure that trophy quality remains constant." Diminished "trophy quality" means that the number of mature, sexually active males in the population is decreasing, threatening the survival of elephant populations.

CAMPFIRE is plagued by corruption. For example, in a December 1996 report, the Zimbabwean Parliament concluded that Zimbabwe's Department of National Parks and Wild Life Management, one of the implementors of the CAMPFIRE program, is "riddled by corruption, infighting, and jealousy" and that a "management crisis" existed in the Department. In addition, in July 1996, senior officials of Zimbabwe's richest CAMPFIRE district, Nyaminyami, were alleged to have misappropriated funds and to have accepted kickbacks for granting illegal hunting rights.

CAMPFIRE already receives approximately $5 million dollars in support each year from the U.S. Agency for International Development (USAID)—five times the amount the African Elephant Conservation Fund receives from Congress. The HSUS considers USAID's contribution to CAMPFIRE to be a waste of American taxpayer dollars that should not be repeated during the U.S. Department of the Interior's allocation of scarce funds available under the African Elephant Conservation Act.

Mr. Chairman, in closing, I would like to note that the remaining years of this century will determine the way in which humans will interact with wild animals in the future. Human populations have expanded into natural habitat, causing destruction or unnatural confinement of animal populations, which at the same time causing the increase in the number of conflicts between humans and wild animals. Urgent action is required to develop and implement innovative approaches to reduce human-animal conflict in ways that will protect animal populations and their habitat in the new millennium. We can no longer pursue growth and development at the expense of wildlife. The HSUS is working to find ways to promote humane and sustainable development that does not rely on wildlife killing and seeks your support for our efforts.

Thank you, Mr. Chairman and members of the Subcommittee, for this opportunity to share with you our views about the African Elephant Conservation Act.

STATEMENT OF ROBERT N. GINSBURG, CHAIRPERSON, ORGANIZING COMMITTEE, REPRESENTING THE INTERNATIONAL YEAR OF THE REEF

In 1994 Terrence Hughes, a coral reef biologist, completed 20 years of surveillance of reefs fringing a Caribbean island he found appalling changes in reef health. Most of the reef-building corals originally fully alive were now dead and covered with fleshy algae. The devastation was like what one sees in a forest that has been clear cut. From Southeast Asia to South Florida, coral reefs show signs of decline, not only from destructive fishing methods, but from a multitude of other injuries inflicted by growing human populations. In response to this crisis, 1997 has been designated the International Year of the Reef.

IYOR is a grass roots coalition of scientists, environmentalists, sport divers and students in some 20 or more countries who want to highlight the importance of reefs, spread understanding of these remarkable ecosystems and promote their preservation. IYOR is the recognized public counterpart of the International Coral Reef Initiative, a multi-government-sponsored initiative aimed at the promotion of sustainable management of coral reefs and their associated sea grass beds and mangrove forests. Both programs are the result of the growing concern for the survival of reefs and the increasing recognition that reefs are essential to the economic health of many nations of the world.

RATIONALE FOR IYOR AND ITS GOALS:

The idea for an International Year of the Reef developed in June, 1993 at a meeting in Miami, Florida of more than a hundred reef scientists from 20 different countries. During the week-long meeting a strong consensus developed that many reefs were seriously degraded, but it was also clear that information on the global extent of these declines and the impacts responsible was lacking. It was also evident that protecting reefs and their rich resources can best be accomplished by educating users, government officials and the general public. These concerns led to the development of four main goals for IYOR.

Goals of IYOR:

•assess the health of the worlds reefs to identify reefs in decline and those that are potential parks or preserves;

•diagnose causes of decline and help develop remedies;

•promote community management of resources to accomplish their sustainable use; and

•educate the public about reefs to promote their protection.

Support from the International Coral Reef Initiative helped start the global assessment of reef health last year with pilot projects in the Pacific, Atlantic and Indian oceans. These include (1) a Report on the status of Pacific reefs in ten countries based on anecdotal reports, to be published this summer; (2) the results of a study of the effects of fishing on coral reefs of Tanzania, soon to appear in a scientific journal; and (3) re-surveys of reefs studied twenty or more years ago in Puerto Rico and the Bahamas providing information on long-term changes in the coral communities.

During IYOR, the combined efforts of reef scientists and volunteer divers will produce the first-ever comprehensive overview of global reef health. Assessments by specialists will be supplemented by Reef Check 1997, surveys of reef corals and fishes worldwide by volunteers from at least a hundred sport diving groups. In addition, re-surveys of reefs studied decades ago will be expanded to gauge the effects of long-term impacts of both natural and anthropogenic stresses.

CAUSES OF REEF DECLINE AND RECOMMENDED REMEDIES:

There is no universal cure for reef degradation because the causes are so variable.. Just as physicians must diagnose before treating human diseases, so reef scientists need to first identify the causes of degradation before designing remedies. Overfishing for subsistence and livelihood is a principal negative impact on reefs in many island nations where socio-economic alternatives are in short supply. Among the alternatives that already show signs of promise is the effort to convince fishermen that live fish can have more long-term value as tourist attractions than as a short-term food supply. Establishing no-take fish reserves that are monitored by local populations can maintain stocks. Aquaculture of corals and tropical fish could reduce pressure on wild stocks. Convincing restaurants and diners in some countries that large reef fish are more valuable as key elements in the reef ecosystem than as status-symbol meals could reduce current run-away harvesting of these top pred-

ators that are key elements of reef ecosystems. Coastal runoff of sediments and fertilizer is a significant threat to reefs that must have, clear low-nutrient waters. Proper design of land development and forest logging in several areas can reduce the deterioration of coastal water quality. Halting the discharge of industrial pollutants and untreated sewage from centers of population can cut down on chronic stresses on nearshore reefs.

EDUCATION TO INSPIRE STEWARDSHIP:

A major goal of IYOR is to increase public awareness of the need to protect coral reefs through education. Some of the various efforts on hand and being developed in at least 20 different countries include:

•an outstanding exhibit on Caribbean reefs prepared by the Smithsonian Institution to be displayed at several locations in the United States;

•regional workshops on reef systems and reef management are to be held in Kenya, Brazil and Fiji;

•teaching aids on reef communities and their interactions for students and the public are being developed in Mexico, Colombia and the United States;

•television documentaries and public-service announcements are already available and other are in production in several countries;

•special programs on reefs are planned for zoos and public aquaria in the United States;

•a poster contest on coral reefs for students has been announced;

•lectures and demonstrations about reefs are scheduled in Germany, the Philippines, United Kingdom, Colombia and the United States;

•field trips for families and a reef awareness weekend in Florida; and

•an exhibit of underwater photographs is circulating across the United States.

These numerous initiatives are just the beginning, and interest groups all over the world are developing their own programs of education about reefs.

ASSESSMENT OF REEFS OF THE AMERICAS:

To illustrate the IYOR approach to reef assessment, I offer the example of the Western Atlantic; a similar approach can be applied to other reef areas of the world. Coral reefs of the Western Atlantic, Figure E, are of special interest to the United States for several reasons. The reefs of South Florida, the Virgin Islands and Puerto Rico are major attractions for tourism and for education. Tourism alone in these areas amounts to 10-20 billion dollars annually and provides numerous jobs. To preserve the valuable resources of reefs requires that they are used in a sustainable way. Already there are clear signs of decline in reef fish populations, the kind of warning signal that forecasted the disappearance of major commercial fisheries which has occurred elsewhere in the world—California anchovies, cod, herring, salmon and some tunas.

Individual coral reefs cannot persist alone, but must be replenished with new reef building recruits from other reefs. For Puerto Rico and the Virgin Islands, these recruits may come from upcurrent in the Antilles; for South Florida, it is the Gulf Stream System that brings the immigrant larvae of reef fish (95%) and corals from the Caribbean Sea and especially from reefs of Central America. Clearly, maintaining the health of reefs throughout the region is therefore in our own interests.

Our total trade with countries that have reefs in this region was some 50 billion dollars in 1995 and total tourism from the United States is estimated to be at least 10 billion dollars. Helping these trading partners to manage their reefs has benefits to both sides. It insures that these reefs continue to replenish our own reefs with recruits of fish and coral and it demonstrates the kind of enlightened neighborliness that helps to insure good relations with our trading partners.

It is well established that reefs close to population centers are often seriously degraded. What is not know, and must be discovered as rapidly as possible, is the condition of large areas of reefs remote from population centers. If these remote reefs show extensive declines, that would indicate the impact of a regional stress, a most serious threat to other reefs. If alternatively, remote reefs are in good health, then the surveys can provide valuable baseline information to assist governments of the region in developing sustainable management strategies and in selecting reef areas for parks or preserves.

The IYOR Program of reef assessment in the Americas will build on and expand existing programs in the region. CARICOMP, the network of long-term reef monitoring sites around the region will provide essential baseline data on reef communities. Assessment of the condition of Florida reefs is well underway by several different groups: NOAA and EPA, The Nature Conservancy, Florida Institute of Oceanography and the University of Miami. It will expand this summer with cruises to examine reefs in the large areas of the Bahamas, Yucatan and Belize. And parallel activities are being planned for other reef areas in the Caribbean.

Similar efforts are needed in the other reef areas of the world. In the Pacific, assessments of reef health can build on the extensive experience of the reefs of the Hawaiian Chain, Guam, Samoa, and the Philippines among others and it should expand to other little known reef areas like the South China Sea. The background of information on reefs of Indonesia and East Africa can be used as the foundation for more comprehensive assessment of Indian Ocean reefs.

SUPPORT FOR THE RESOLUTION (H. CON. RES. 8):

Coral reefs are among kingdom earth's crown jewels. We, the users and beneficiaries of these remarkable resources must do all that we can to preserve them in good health for future generations. The Resolution before this Subcommittee is a clear and forceful statement of the importance of coral reefs and of the existing government-sponsored measures to protect them and to contribute to their understanding. What is needed, and needed urgently, is funding to support non-governmental activities that address the goals of Resolution. I suggest that the way to support these activities is through a program of matching grants that can stimulate the involvement of foreign governments, foundations and even individuals. On behalf of the community of scientists, environmentalists, and reef enthusiasts involved in the International Year of the Reef, I commend the authors and sponsors of the Resolution and I am pleased indeed to offer our full support for it and its goals.

STATEMENT OF JAMES W. PORTER, PH.D., PROFESSOR OF ECOLOGY AND MARINE SCIENCES, INSTITUTE OF ECOLOGY, UNIVERSITY OF GEORGIA, ATHENS

Coral reefs are by far the most diverse ecosystems on earth, supporting more than 33 animal phyla, as compared to only 8 phyla found in a tropical rainforest. As can be expected from such diverse environments, coral reefs yield an amazing pharmacopeia of drugs and products to fight human disease. Prostaglandin is one of the most potent anticancer drugs known to medical science and was first extracted from Floridian sea whips. *Porites* coral skeletons are routinely used as a bone substitute for advanced cases of osteoporosis and coral is the material of choice for skeletal reconstructive surgery. Estimates of coral reef fisheries of up to 31 metric tons per annum, as well as tourist and recreational value demonstrate the economic importance of maintaining the health and stability of coral reef ecosystems. In the Florida Keys alone fishing, diving, boating, and other water-related activities contribute $1.5 billion per year to the local economy.

Corals are actually a unique association between a cnidarian host (The phylum Cnidaria includes the sea anemones) and a symbiotic unicellular plant (the dinoflagellate alga, *Symbiodinium*) (Porter *et al*., 1984). This duality confers on coral its Herculean strength but also its Achilles heel. Unlike most animals, corals require light to survive because of its symbiotic algae. Therefore, turbid water kills coral. Coral reefs flourish in sea water which is (1) clear, (2) low in nutrients, and has (3) stable salinity and (4) stable warm temperatures. Corals are very efficient in extracting nutrients from the surrounding water, and recycling them within their symbiotic association. Therefore corals do best under conditions that for most marine organism would be considered deprivation and are killed by luxury (Muscatine and Porter, 1977). During growth, corals deposit calcium carbonate (limestone). Like tree rings, coral skeletons indelibly record past climates, paleotemperatures, and human transgressions to the coral reef environment.

Corals are the marine equivalent of canaries in the coal mine. They are among the first organisms to disappear when conditions for reef development become unfavorable. Since they actually build the limestone structure of the reef, their death means rapid decline of the three-dimensional habitat. Their loss is to fish what deforestation is to birds. As demonstrated in the following paragraphs, corals can also be early warning detectors and harbingers of: (1) global marine problems, (2) oceanic basin problems, (3) oceanic regional problems, and (4) oceanic local problems.

Recent data shows that global ocean temperatures are rising (Cane *et al*., 1997). Ironically, corals are much closer to their upper lethal temperature than to their lower lethal temperature. Most tropical marine creatures are similar in this respect. An increase of only a few degrees centigrade kills coral. Normally such elevated temperatures are not in the realm of possibility, but in 1987, corals throughout the Caribbean turned white (Brown and Ogden, 1993). This was caused by abnormally high seawater temperatures. A rise of only three oC was sufficient to denature coral proteins and destroy plant pigments (Porter *et al*., 1989). Theoretically, corals can recover from this thermal stress when the temperature returns to normal, and we documented such a "recovery" in corals between 1987 and 1989 (Fitt *et al*., 1993). I put "recovery" in quotation marks, however, because our publication was pre-

mature. Corals that bleached had a much higher rate of mortality over the next three years than those that did not. Many corals that appeared to recover subsequently lost color again and died.

Coral bleaching does not prove global warming, but global warming is the best current hypothesis to explain the outbreak of coral bleaching episodes during the last decade world wide. Even if we can not use coral bleaching to prove global warming, we can state unequivocally that 99.99% of all coral bleaching is caused by elevated To, and that without a doubt, corals will be the first tropical marine animals to show the effects of global warming. Coral reefs as we know them would not survive global warming.

Corals are also influenced by problems occurring within their oceanic basin. As part of our NSF supported studies on seasonal patterns of photosynthesis and respiration of Floridian corals, we measured oxygen production and consumption *in situ* in the reef-building star coral *Montastrea annularis*. Most of the data conformed to expected values, exhibiting an increase in respiration rates during the warmer summer months and a decrease in respiration during the colder winter months. Likewise, photosynthesis was expected to follow the same pattern. It did not. During our September, 1993 sampling, photosynthesis completely collapsed.

The best explanation is not intuitive. During the summer of 1993, the Mid-West and the Mississippi River experienced one of the worst periods of flooding in recorded history (Halpert *et al*., 1994). Along with the flood waters, the river carried pesticides and herbicides in sufficient quantities to be recorded as they exited the mouth of the Mississippi River (Dowgiallo, 1994). These materials, particularly herbicides, entered the Gulf of Mexico, but were soon entrained into the Gulf Stream and arrived at our experimental sight in Florida the day before our measurements began. We speculate that it was the herbicides in this water, manufactured to kill weeds, which ultimately diminished the photosynthetic capacity of Floridian corals.

A proper scientific experiment is replicated three times. I do not want to replicate this ″experiment″ three times. This example suggests that, in the ocean, everything is connected. Further this should tell subcommittee members, who may not be from maritime states, that your states are nevertheless hydrologically linked to maritime environments and maritime problems.

We have documented a loss of corals in the Florida Keys (Porter and Meier, 1992). The loss rate at the studied locations averaged 4% per year, and was up to 10% per year in some places. The best predictor of coral loss was simply a reef's proximity to the cuts and passes between the Keys leading from Florida Bay to the open Atlantic Ocean. Reefs near passes, and therefore reefs frequently inundated by Florida Bay water, declined rapidly; reefs removed from the influence of Florida Bay grew (Porter, *et al*., 1994). As part of a large EPA-funded study in the NOAA Florida Keys National Marine Sanctuary, we are examining what aspects of Florida Bay water may exert an adverse influence on coral reefs in the Sanctuary. We are focusing on elevated turbidity in the Bay. Data provided by Drs. Ron Jones and Joe Boyer of Florida International University show an increase in the amount of turbidity in Bay waters throughout this current decade (Boyer, *et al*., 1997). Remembering that corals require clear water with low nutrient concentrations, these data suggest a possible regional link between the deterioration of Florida Bay and the decline of Floridian coral reefs. The health of downstream ecosystems is inextricably linked to the health of upstream ecosystems.

Sometimes we have no explanation for local problems. A host of new coral diseases have recently appeared in Key West, including the newly described "White Pox" (Holden, 1996). Figures 1 and 2 show "before" and "after" photographs taken a little over a year apart on coral reefs off Key West. The area is infected with this new disease and these paired photographs from the same site show the virulence and rapidity of spread of the disease. Several new coral diseases were first discovered in this same location. The origin and rapid spread a host of new coral diseases in the Key West area is as yet unexplained. These discoveries, however, emphasize the importance of monitoring (Ogden*et al*., 1994) and local stewardship of our diminishing coral reef resources.

Congressional Resolution 8 will aid in the protection of coral reef resources. It should be supported by both maritime and land-locked states because even land-locked states are hydrologically linked to the sea. Good words, however, are not enough, and a vote for this bill should be accompanied by an appropriations vote for financial support for agencies such as the National Marine Sanctuary Program, which is charged with protecting these environments, and the U.S. EPA, which is charged with providing the research and monitoring required to make these long-term management goals feasible.

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Figure 1. Origin and development of a new coral disease "White Pox" on coral reefs in the Florida Keys off Key West. Top photograph shows one photostation on Eastern Dry Rocks Reef (KW-II-26) in July, 1995 and the bottom photograph shows the same area photographed the following year (KW-II-26, October, 1996). In this region alone, more than 80% of the elkhorn coral, *Acropora palmata*, were attacked and killed by "White Pox" within one year. Photographs by James W. Porter.

STATEMENT OF TERRY D. GARCIA, ACTING ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Good day, Mr. Chairman, and members of the Subcommittee. I am Terry Garcia, acting Assistant Secretary for the National Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce. It is an honor and a pleasure for me to appear before you today to highlight the programs that NOAA has undertaken to address our Nation's coral reef crisis, which was so eloquently stated by House Concurrent Resolution Number 8 (HCR 8).

INTRODUCTION

NOAA is pleased to provide testimony in support of Congress's leadership for, and commitment to, active stewardship of our Nation's fragile coral reef ecosystems, including associated mangrove forests and sea grass beds. HCR 8 addresses the leadership needed at the national level to address and support local management that balances economic, social, and environmental concerns for the welfare of these coral resources and the benefits they provide our Nation.

NOAA has established itself as a global leader in coral reef stewardship through its many activities. NOAA, in conjunction with other Federal agencies, non-governmental organizations, scientists and Congress, joins over 50 nations, principalities, and other organizations in celebrating the International Year of the Reef. Domestically, NOAA and others launched the United States Coral Reef Initiative (US CRI) to protect the Nation's coral reef resources. Internationally, NOAA has been a leader in the development of the International Coral Reef Initiative (ICRI) since it was established by the United States and 8 other nations in 1994. There are now over 75

participating governments. NOAA appreciates the congressional recognition embodied in HCR 8 as well as the responsibilities commensurate with it, although we are but one player in this process. The Department of the Interior, the Department of State, Agency for International Development, and the Environmental Protection Agency are all actively involved in implementing the goals of the Coral Reef Initiative. With your continued support, NOAA and the rest of The Administration will continue to help address your concerns for the health and stability of our Nation's coral reef systems—systems that are in dire crisis. We will do this by working with the key resource managers and scientists at the national, regional, and local level.

HCR 8 states that NOAA has a key role in the stewardship of our Nation's marine resources through national partnerships such as the National Marine Sanctuaries, National Estuarine Research Reserves, and Coastal Zone Management programs, and our continued work to develop science-based solutions for habitat conservation and sustainable development. There are many other NOAA programs involved in the protection of coral reefs and their associated habitats such as the National Marine Fisheries Service, the National Sea Grant College Program, the National Undersea Research Program and the Coastal Ocean Program. While these programs address and support many aspects of reef stewardship, it is important to remember that much of the work of coral reef management for most of the Nation's reefs takes place at the local level under local and regional management initiatives.

I would like to take this opportunity to discuss four issues with you: the current global and national coral reef crisis; what this means in the United States to both local communities and regional resource-dependent economies; what NOAA is doing to address the crisis; and the identification of needs and gaps in our resource monitoring, protection and management strategies.

RECOGNITION OF AN ECONOMIC-ENVIRONMENTAL CORAL CRISIS

Coral reefs are in serious decline globally, especially those near dense populations and in shallow waters. Our Nation's reefs are no exception. Many coastal communities in semi-tropical and tropical latitudes depend on coral reef ecosystems for jobs, income and food, making the degradation and loss of coral reefs a serious economic and environmental crisis.

International Experts now estimate that over two-thirds of the world's reefs are dangerously stressed. It is estimated that 10 percent of the world's reefs are beyond recovery, while 30 percent are in critical condition, with 10-20 years left to live if something is not done to save them. Although coral reef and seagrass communities have adapted to deal with natural stresses such as predators, diseases, tropical storms, and some climate changes, human activities are now impacting reefs in many different ways and the cumulative impact of human and natural stresses is destroying many reefs. The cumulative impact of human activities is more than reefs can handle leaving them dead, damaged and seriously compromised in dealing with natural stresses. The solution is both simple and difficult: If coral reefs are to survive we must reduce the magnitude and diversity of human impacts.

The human impacts of reefs vary from reef to reef, region to region. In general, however, the most serious anthropogenic causes of coral reef degradation are land-based sources of pollution and direct and indirect effects of fishing. Corals need clean warm water to survive. Poor water quality caused by oil pollution, plastics, sewage, or agricultural run-off can poison reef organisms or cause algae to overgrow and smother reefs. Sediment pollution from dredging, filling and sediment-runoff from coastal or upstream deforestation can also smother the fragile corals. Depletion of fish stocks removes key species that are essential to maintaining the balance of coral reef ecosystems. For example, many reef fish are grazers on algae. When the fish are removed the algae can overgrow the coral itself, eventually smothering and killing sections of coral reef. The indirect effects of some fishing is very destructive: in the Indo-Pacific thousands of years of coral reef growth is destroyed in minutes by dynamite blasting and poisons used to collect fish and other reef organisms for food and the international aquarium trade.

Other human impacts on coral reefs include damage from the growing dive and tourism industry that can now bring hundreds of divers and snorkelers to reefs every week. Boats and boat anchors can do serious damage to reefs. In the past two months, for example, there have been three ship groundings on the coral reefs in the Florida Keys National Marine Sanctuary, including the largest ship to ever hit these reefs. Other uses of the coastal fringe that destroys the backreef mangrove and seagrass communities that are important parts of the coral reef ecosystem can also have negative impacts. This would include the harvesting or displacement of mangroves and seagrasses for aquaculture ponds and the mining of coral and coral sand. By signing on to the International Coral Reef Initiative, more than 75 nations and principalities have demonstrated that they recognize that human activities can

cause significant impact to coral reef ecosystems and have begun national initiatives. The United States is proud to be one of the first.

NATIONAL

Like coral reefs all over the world, reefs in the United States are also in crisis. There are significant coral reef resources in the southern Atlantic, the Caribbean, the Gulf of Mexico and the western Pacific. They include: the Florida Keys coral reef tract and seagrass beds; the deepwater corals of the Oculina Banks off the southern Atlantic Coast; diverse Caribbean coral reefs in Puerto Rico and the US Virgin Islands; the Flower Garden Banks off the coast of Texas, the northernmost reefs in North America, and extensive reefs in the Pacific including Hawaii, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

There are a number of indicators of the coral crisis here in the United States. Of special concern are the coral resources that are candidates for listing under the Endangered Species Act, including 10 coral and 2 fish species. Perhaps the best studied example of the crisis at the national level is the Florida Keys where the coral reef tract and associated seagrass beds are being adversely affected by humans. Problems include both large and small boat groundings, poor water quality from Florida Bay, and impacts from divers and snorkelers inadvertently breaking coral. Overharvesting of many species of fish, particularly large predators, has severely altered the environmental balance of the Keys. The past two years has seen an increase in the incidence and types of diseases afflicting corals as well as other reef organisms. Scientists are currently investigating whether some of these diseases result from human activity.

WHY DOES IT MATTER WHAT HAPPENS TO CORAL REEFS?

The economics of coastal areas affect the entire Nation. The health of the reefs influences where people live, work and play. More than one-half of the US population lives in one of our Nation's 411 coastal counties—only 11 percent of the land—an average of more than 750 people per square mile. People depend on coastal resources for jobs, income and a way of life. For example, the recreational fishing industry contributes more than $30 billion to the US economy annually. Tourism-related businesses serve 180 million Americans visiting the coast each year. The Gulf of Mexico produces 42 percent of all seafood harvested in US waters. A significant portion of US fisheries and tourism is related to coral reef ecosystems.

The density of fishes on the reefs is 100 times greater than the average for most of the ocean. Reefs can be tens of meters high and thousands of kilometers long. Coral reefs are among nature's most spectacular and beautiful creations with almost a million species, a warm water world of exotic fish, coral and sponges of every imaginable color proving to be an irresistible attraction to tourists and visitors worldwide. For many of these reasons, the Florida Keys are the number one dive destination in the world. The contributions that healthy coral reef ecosystems can make to coastal and regional economies are incredible.

CORAL REEFS SUPPORT FISHERIES AND TOURISM INDUSTRIES

For example, over three million tourists visit the Florida Keys every year primarily to participate in ocean-related activities like fishing, diving, boating. In 1991, the gross earnings of the Florida Keys and Monroe County was $853 million, $307 million (36 percent) of which came from services provided by the tourism industry. This does not include the other significant contributions these annual visitors make to other sectors of the local economy. It also does not include the commercial fishing industry that contributed $17 million to the Keys' economy. All of these activities depend on a healthy coral reef and coastal environment.

Tourism is a major industry in other US coral reef areas like Puerto Rico, the US Virgin Islands, Hawaii, Guam and the Northern Marianas. In 1991, visitors to the US Virgin Islands spent over $700 million. A significant portion of these tourist dollars is attracted by healthy coral reefs that over the long term help make the sand for the beaches, protect the islands from storm damage, and provide the incredible biological diversity people come to see. Many islands have seen the increase in underwater trails, glass bottom boats, divers, snorkelers and fisherman as clear signs of the value of healthy coral reef habitat. US recreational divers spend at least $300 million in the Caribbean and Hawaii every year.

Tourism in Puerto Rico brought in over $1.4 billion in 1991. Hawaii's tourism generates over $9.0 billion in revenue annually, and some 3 million people visit just one of Hawaii's many corals reef sites every year. About 90 percent of new economic growth in Guam and the Commonwealth of the Northern Marianas, both of which have large coral reef habitats, is tourism related.

Coral reefs cover only about 0.2 percent of the ocean floor, or an area about the size of Texas, but they produce about one-tenth of the fish caught for human con-

sumption, and hold about one quarter of all marine species. Coral reefs are critical habitat for both recreational and commercial fisheries—lobster, red snapper, shrimp and grouper. Twenty-three percent of the 200 commercial reef species in the southeast are overfished, one percent is at full utilization, and the other 76 percent are of unknown status.

A large portion of the economic value of coral reef ecosystems is in their importance in producing commercial and recreational fisheries. In Puerto Rico, for example, the commercial fishery had a vessel value of over $4.0 million. Coral reefs produce an annual maximum sustainable yield of 15 metric tons of reef fish per square kilometer. The productivity of coral reefs is responsible for about one-eighth of the world's fish harvest. In the U.S. Caribbean, for example, the true economic value of the contribution of coral reefs to reef fish production has been estimated at several million dollars annually.

These fisheries can be sustainable contributors to local communities and economies when managed wisely. The Magnuson-Stevens Fisheries Conservation and Management Act provides important new authority that will enable NOAA to do a better job of ensuring long-term sustainability of fisheries that depend on healthy coral reef habitat. The Act calls on NOAA, through the National Marine Fisheries Service, to identify and designate habitat that is essential for the continued viability of living marine resources. Coral reefs designated as essential fish habitat will be eligible for augmented conservation measures. These measures will lead to more stable fishery harvests, with the result that fishing will continue to be an important sector in local coastal economies.

CORAL REEFS PROTECT COASTAL COMMUNITIES FROM STORM AND WAVE DAMAGE

Developers and hotel owners are dependent on coral reefs to provide buffering from high waves and storm surge that can wash away sandy beaches as well as any structures built behind them. In the Northern Marianas and Guam, reefs provide protection from the potentially devastating effects of the storms of "Typhoon Alley."

LOST OPPORTUNITIES AND BIOMEDICAL CONTRIBUTIONS

Coral and other organisms that depend on coral reefs have produced promising leads in the search for anticancer compounds, antibiotics, pain suppressors, sun screens and other products. These organisms potentially hold the secrets to numerous scientific and medical benefits within their rich diversity. A Caribbean sea whip coral, for example, produces compounds with anti-inflammatory properties that are now being used in skin creams and may help alleviate arthritis and other debilitating inflammatory diseases. Coral skeletons have been used for bone grafts in humans, and kainic acid from reef organisms in Japan and Taiwan is used in the diagnosis of Huntington's chorea, a rare but fatal disease that affects the nervous system. There is significant potential for improving human health and stimulating the biomedical industry. NOAA's Sea Grant program and the National Cancer Institute are the main supporters of this research, making the compounds available to industry for testing.

NOAA ACTIVITIES ADDRESSING THE CORAL REEF CRISIS

NOAA is the primary federal agency charged with the stewardship of US coral reefs. Reefs, and their associated habitats like seagrass beds and mangrove forests, are also in state, territorial or commonwealth waters. These entities have important responsibilities and are important partners in our efforts. Many coastal states and territories with coral reef resources have worked to improve their management capabilities to minimize adverse impacts to corals.

NOAA is also involved in international efforts to protect and conserve non-US reefs through partnerships with the State Department, the Agency for International Development,and numerous non-government organizations and other government entities. I am pleased that so many parts of NOAA are involved in activities related to US and other coral reefs including:

The National Marine Sanctuary Program—Through this program, NOAA manages national coral reef treasures like the Florida Keys National Marine Sanctuary, the Fagatele Bay National Marine Sanctuary in American Samoa, the Hawaiian Islands Humpback Whale National Marine Sanctuary and the Flower Gardens National Marine Sanctuary off the coast of Texas. The Jobos Bay National Estuarine Research Reserve in Puerto Rico is another area protecting coral reef habitats and developing solutions for sustainable management of these resources. Many of these sites work closely with other federally protected coral reef areas such as National Parks in the US Virgin Islands, American Samoa and South Florida.

These programs have had also had important roles in restoring coral reefs. For example, following two 1989 ship groundings in the Florida Keys National Marine

Sanctuary that caused significant damage to the coral reef, NOAA recovered funds to restore both sites. By working with the US Army Corps of Engineers and a contractor, NOAA is building a three-dimensional habitat to prevent further degradation of the reef. Marine life is returning and it is hoped that soon coral resettlement will begin.

The Coastal Zone Management Program—This program establishes federal-state partnerships that help coastal states and territories to sustainably manage the coastal zone to prevent damage to precious coastal resources like coral reefs. Seven state and territorial coastal zone management programs include significant efforts aimed at protecting coral reef resources, while others have indirect benefits.

The National Marine Fisheries Service (NMFS) has several important roles related to coral reefs. NMFS manages hundreds of species making up commercial and recreational fisheries that are vital to coastal economies and valued at millions of dollars. For example, over 200 species of reef-dependent commercial fish species exist in the Gulf of Mexico alone. The western Pacific also has many state and federally managed fisheries that depend on coral reef habitats for their survival. NMFS also works to manage and restore the federally and internationally protected species dependent on coral reef habitats like sea turtles, some marine mammals and the hard corals. NMFS, often in conjunction with the National Marine Sanctuaries program, also restores habitat including coral reefs and associated sea grass habitats in sanctuaries and elsewhere. This often involves development of innovative technologies to address the impacts of ship groundings. NMFS enforcement, in conjunction with NOAA General Counsel, promotes compliance with the laws and regulations related to marine sanctuaries and fisheries through various means, including civil monetary penalties, education and outreach programs.

The National Sea Grant Program is an important contributor of information on coral reefs. Working with state, territory and university partners, this program provides research funds to improve the understanding of coral reefs and how humans both benefit and harm them. For example, Sea Grant has produced nearly 1000 scientific and popular articles on coral reefs through its research programs. Sea Grant also has an extension function, through which it provides information to managers and the public. Sea Grant is funding projects on the viability of harvest refugias and on how reefs respond to nutrient loading. Additionally, Sea Grant has helped develop curricula for teachers to use in teaching about the value of coral reef systems. Sea Grant funds an average of $2.5 million in coral reef-related research and outreach activities every year.

The National Undersea Research Program (NURP), the Coastal Ocean Program (COP), and the Office of Global Programs (OGP) are unique contributors to NOAA's effort. NURP provides state-of-the-art submersibles and underwater technology and support for underwater research. Three of NOAA's six NURP centers are working on coral reef issues in Florida, the Caribbean and Hawaii by facilitating the provision of undersea technology and research support. Funding of projects ranges from the Jason Education project to coral reproduction, and the role of corals in water quality and nutrient dynamics in the Florida Keys, as well as coral diseases. COP is synthesizing much of NOAA's information, providing the first ecosystem studies and models that predict the consequences of actions and impacts, for example how Florida Bay water quality affects ecosystems like the Florida Keys. OGP helps predict future climate changes by studying historical changes in the Earth's climate that are reflected in the skeletons of corals that hold records of the past ocean conditions much like the rings in a tree.

The National Environmental Satellite, Data, and Information Service (NESDIS) provides perspectives of the coral reef crisis from space. Using satellite-derived data on sea surface temperature, NESDIS now provides global maps showing "hot-spots" where water temperatures are higher than expected and where coral bleaching might occur. These bleaching "forecasts" are now updated twice weekly and available on the internet. They may allow reef managers to reduce the stresses on coral reefs from other activities during these periods of high water temperature, and thereby reduce the chance of serious damage to the reefs.

These are just a few examples of NOAA programs and activities related to coral reefs. These are the tools NOAA uses to address the coral reef crisis and help fulfill NOAA's environmental stewardship responsibilities as outlined in our strategic plan. In FY 1996 NOAA spent approximately $26 million for these activities addressing management and protection of coral reefs.

ICRI: THE US AND NOAA'S ROLE

Despite some progress in the protection and management of coral reefs, the coral reef crisis remains very real both in the US and abroad. In response to the continued decline and destruction of coral reef ecosystems worldwide, the US and eight

other nations established the International Coral Reef Initiative (ICRI) in 1994 to support additional actions to protect, restore and sustainably use these fragile resources. ICRI is designed to be a catalyst for additional actions that build on existing efforts. The goal is for each nation to develop its own initiative to fill the gaps and create partnerships that can slow the decline of coral resources. I am very pleased to say that the US was one of the first nations to develop a national coral reef initiative and help others do the same. There are now 75 nations that have joined the Coral Reef Initiative process. For example, the South Pacific region launched its own Pacific Year of the Reef on February 11.

NOAA, AID, the Department of the Interior, EPA and other federal agencies have assisted the State Department in the development and implementation of ICRI by providing technical assistance on many coastal/ocean management issues and helping define priorities for coral reef initiative efforts.

NOAA is involved in many international projects related to ICRI. A few of the many examples include:

—NMFS has worked with the State Department to help establish and implement a Global Coral Reef Monitoring Network (GCRMN). The GCRMN will provide global access to coral reef data, including management techniques which have proven useful in sustaining coral reefs.

—NMFS is working with Mexico on regional implementation of the International Coral Reef Initiative in North America through NAFTA's Commission for Environmental Cooperation (CEC).

—In addition to broader Hawaii Sea Grant activities in the Republic of the Marshall Islands, and the Republic of Palau which include coral reef issues, Hawaii Sea Grant recently participated in a team of U.S., Japanese, and Palauan experts which assessed the feasibility of an international coral reef center in Palau.

—NOAA has actively supported U.S. Government efforts to work with the Asia Pacific Economic Partnership (APEC) to reduce detrimental fishing activities, such as cyanide fishing, that are significant contributors to the destruction of coral reefs in the Indopacific region, a major center of diversity for coral reefs. NMFS is helping organize an APEC workshop on cyanide fishing in Mexico this June.

—Working with USAID, NOAA has been providing technical assistance in support of the Middle East peace process, helping the governments of Jordan and Israel develop a Binational Red Sea Marine Peace Park. This park protects the coral reefs in Aqaba, Jordan and Eilat, Israel and supports sustainable development goals related to coral reef based tourism. The Peace Park now has a complete mooring and boundary marker system in place. The park has management regulations including zoning, and has begun the process of supporting a collaborative research and monitoring program between the countries of Jordan, Israel, and Egypt for the Gulf of Aqaba.

WHAT CAN BE DONE?—THE US CORAL REEF INITIATIVE

NOAA has been an important contributor to the design and implementation of the US Coral Reef Initiative. Although no new funds have been appropriated for NOAA's participation, NOAA contributed over $1.2 million from in FY 1996 base funds to support 42 new projects addressing priorities of the US Coral Reef Initiative. Some of these projects are now public-private partnerships developed through the National Fish and Wildlife Foundation to leverage public resources. All of these projects are NOAA's attempt to help to fill gaps in existing US efforts to protect and manage coral reefs. Here are just a few examples of the kinds of projects I am talking about. Many of the projects are described in more detail in the brochure that you have entitled "NOAA Coral Reef Initiative".

PROMOTING SUSTAINABLE USE.

Sea Grant extension agents have worked with other federal, local and private entities to transfer information and technology to local communities. In the Pacific, this has supported sustainable use of reef resources through ecotourism and mariculture. Mariculture provides a means of reestablishing species that have been overharvested, provides an alternative to wild harvest, and provides economic development opportunities. Sea Grant is also funding local research to understand human impacts on the reefs.

SUSTAINABLE REEF FISHERIES

In the western Pacific, NOAA supported the first comprehensive assessment of coral reef resources, current management efforts and future management needs. In the Caribbean, NOAA and its partners have helped develop protected marine areas and conduct research to determine how best to manage them.

REDUCING ILLEGAL CORAL TRADE

NOAA's National Marine Fisheries Service is working with partners to help prevent illegal exports of corals by training import and export personnel about corals and international trade regulations. The US is the world's largest importer of coral products accounting for 85 percent of the raw coral and 98 percent of live coral trade. Ninety-five percent of this trade comes out of Indonesia and export of corals requires permits from country of origin because all hard corals are listed in Appendix II of CITES, the Convention on International Trade in Endangered Species. The more people granting the permits know about corals and coral trade, the better management decisions they will be able to make.

Twenty percent of the over $1.2 million contributed by NOAA to the US Coral Reef Initiative were used to build private-public partnerships, which have now attracted over $150,000 in non-federal matching funds for local-level management projects through NOAA's new partnership with the National Fish and Wildlife Foundation. We think public-private partnerships are powerful tools in this and other areas of our environmental stewardship responsibilities.

Although this is a start, the crisis is far from over, and much work remains. One of the most important themes of the US CRI is the support for community involvement in the implementation of local and regional efforts to protect and sustainably manage US coral reef ecosystems. NOAA is working to marshal resources for these kinds of efforts in addition to our other coral-related stewardship responsibilities.

The US Coral Reef Initiative is fundamentally about partnerships. These partnerships will work to stop the degradation and loss of coral reefs while balancing local and regional economic concerns. The power of these partnerships is that they produce actions that are more than the sum of their parts. States, territories, commonwealths, non-government organizations, universities, the private sector and other federal agencies are working together on reef related activities to make this a reality. Although the US CRI is off to a good start, we still have a long way to go, and a number of on-going gaps and needs to be addressed.

WE NEED TO INCREASE PUBLIC AWARENESS

In the last decade, the awareness of the fragility of these reef ecosystems has grown considerably, as has the growing awareness of the need to concentrate increased management efforts to mitigate impacts from adjacent land uses. We can no longer afford to allow direct, physical damage to occur due to uses which degrade the fragile ecosystem of a reef. Educating users who impact coral reef communities, and directing their activities so as to avoid such impacts, must be one of the constant objectives of comprehensive stewardship.

The International Year of the Reef (IYOR) was declared by scientists, managers, and non-government organizations to promote coral conservation efforts and increase public awareness of human impacts, coral losses and the need for local, national and international stewardship of coral reefs. The United Nations, the US, other signatory nations and numerous organizations are involved in the production of videos, posters, and other materials to promote public awareness of how human activities can impact our natural environment.

On February 24, 1997, NOAA, the State Department and many of our non-governmental partners kicked off a new national public awareness campaign on the value and loss of coral reefs. This is NOAA's major contribution to the International Year of the Reef. The theme of the campaign is " *Coral Reefs: The Rainforests of the Sea"* because like rainforests, coral reefs are among the most diverse ecosystems in the world.

The campaign makes available information on what people can do to save coral reefs no matter where they live. We've provided you with some of the materials that are available including the poster by renowned marine artist Robert Lynn Nelson, and the brochure *"25 Things You Can Do To Save Coral Reefs"*. These, and other materials, are available to the public by calling 1-888-CORAL-REEF. You will begin seeing this number on signs, on public service announcements before movies in theaters, on television, and on the radio in the near future. Public awareness is important because people can make a difference in the coral crisis.

There are, of course, many other areas of need and gaps to be filled in our efforts to avert further loss of coral reefs. Let me leave you with just a few key themes.

THE NATION NEEDS BETTER INFORMATION AND TECHNOLOGY

Scientists and managers need the resources and simple techniques to monitor the health of coral reef ecosystems. Techniques must be implemented on the local and regional level to give managers better information on the status of reefs so they can make effective, and proactive, management decision. What is needed is not only additional monitoring but also improved access to the information being produced. There are several examples of information networks that can be expanded to link information and people working on coral reefs in the US and around the world.

RESTORATION TECHNIQUES

Ongoing support is needed for research and development on the restoration of coral reefs and their associated ecosystems, which is a critical parallel to the reduction of human impacts.

PROACTIVE INVOLVEMENT BY RESPONSIBLE PARTIES

Government, as well as other parties, needs to proactively reduce threats from anthropogenic sources, such as the sedimentation and poor water quality affecting reefs in Hawaii and the Florida Keys. Responsible parties also need to work together to prevent, while at the same time being prepared, to address impacts from singular events like oil spills and ship groundings, and nonpoint sources like sewage seepage and nutrient input into coral systems.

For example, Hawaii and the trust territories and commonwealths of the Caribbean and Pacific are ringed by coral reefs and subject to increased stresses from rapid coastal urbanization. These reefs are impacted by nutrient enrichment from point and non-point sources of pollution, dredging for harbor and marina uses, overfishing and fishing practices, anchor damage, and similar activities, and have not received the total focus needed to ensure their health and protection. In South Florida, work is needed on the outbreaks of coral diseases and how to address questions of human carrying capacity of the Florida Keys and surrounding ecosystem.

CONCLUSIONS

Over $300 million is spent in the Florida Keys by tourists every year who expect to find a healthy Florida Keys National Marine Sanctuary. In Guam and the Northern Mariana Islands, 90 percent of the new economic development is coastal, and 3 million tourists visit one of Hawaii's many coral reef sites every year. In American Samoa, corals reefs have an important cultural role and supply over 50 percent of the local fish used for subsistence. Coral degradation reduces the productivity and value of the world's reef fish fisheries since these fish are dependent on reef habitats for food and shelter. Coral reefs produce an annual maximum sustainable yield of 15 metric tons of reef fish per square kilometer.

By 2005, NOAA envisions the Nation's coasts with more productive and diverse habitats for fish and wildlife, cleaner coastal waters for recreation and seafood production, and coastal communities with thriving, sustainable economies based on well-planned development and healthy coastal ecosystems. To reach its Sustain Healthy Coasts goal under the NOAA Strategic Plan, we have committed "to protect, conserve, and restore coastal habitats and their biodiversity." NOAA's strategy to reach its objective of protecting and restoring coastal habitat, including coral reefs, involves three distinct roles for NOAA: providing greater understanding, designing and implementing management solutions, and synthesizing and communicating information about problems and solutions to decisionmakers and the public.

At NOAA, we are implementing our initiatives and issuing a call to action for the American people and all of our partners to help save "Coral Reefs—Our Rainforests of the Sea". But these initiatives, and any new ones that we hope to undertake, will depend upon strong partnerships and support from our constituents and Congress. NOAA wishes to acknowledge the critical role our partners play in this initiative, including federal agencies, non-governmental organizations, businesses, local governments and the public. With ongoing support, these partnerships will continue to grow in number, importance and effectiveness. Addressing the problem of human impacts on the world's reefs requires a synergistic response using the collective energies of science, resource management agencies like NOAA, and our many other partners. I am pleased to present the committee with examples from our outreach campaign for the International Year of the Reef—NOAA's poster *"Rainforests Of The Sea", "25 Things You Can Do To Save Coral Reefs"* brochure, and other materials.

Thank you, Mr. Chairman. This concludes my testimony. I will be pleased to answer any questions you may have.

TESTIMONY OF MARSHALL P. JONES, ASSISTANT DIRECTOR FOR INTERNATIONAL AFFAIRS, UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Mr. Chairman, I very much appreciate the opportunity to be here today to discuss H.R. 39, the African Elephant Conservation Reauthorization Act of 1997, and the U.S. Fish and Wildlife Service's implementation of the African Elephant Conservation Act. It is particularly timely that renewed emphasis is now being given to this landmark legislative initiative.

With respect to H.R. 39, the reauthorization of the Act through the year 2002, the Service strongly supports this legislation. The African Elephant Conservation Act, as I will more fully detail in my statement today, has played a significant role in U.S. efforts to encourage and assist in on the ground projects aimed at conserving elephants in Africa. In fact, the early success of this program provided the impetus to the passage of the companion Rhinoceros and Tiger Conservation Act of 1994, and initial funding provided pursuant to this new act in Fiscal Years 1996/97 has allowed us to begin a modest grant program directed at highest priority projects for critically endangered rhinoceros and tiger populations.

As a Party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and a major consumer of species covered by the Convention, the U.S. shares responsibility for supporting and implementing measures to provide for the conservation of endangered and threatened species, both at home and abroad. The African Elephant Conservation Act is designed to encourage and assist efforts to conserve one of the world's most ecologically and sociologically important species of wildlife. The Act's key element is the provision of financial resources to help support elephant conservation programs in the wild in their countries of origin. The Act is part of the strong U.S. commitment to assisting the people of developing African nations in implementing their priorities for wildlife conservation. Continued support by the U.S. through reauthorization of the Act remains critical to the continued conservation of African elephants.

The remainder of my remarks today will focus on the successes of the African Elephant Conservation Act. Enacted in 1989 and initially funded in fiscal year 1990, the Act has now given us over six years of experience with African elephant conservation programs in seventeen African countries. The African Elephant Conservation Act came into existence at a time when most African elephant populations were declining at an alarming rate, due primarily to poaching for a large illegal trade in ivory. Population estimates vary widely for the African elephant from the 35 countries within the current range, but it is estimated that total elephant numbers declined continent-wide by as much as 50 percent during the late 1 970s and 1980s.

In response to this precipitous decline, the Act authorized a unique, two-pronged conservation strategy. First, it required a review of elephant conservation programs and established a process for implementation of strict ivory import controls; and second, it established a Fund for cooperative conservation projects in African countries. Under the authority of the ivory trade provisions of the Act, in June of 1989 the President established a moratorium on all ivory imports into the United States, which was at that time the third largest consumer of ivory in the world. The Congressional leadership that facilitated passage of the Act, and ensuing U.S. ivory import moratorium, were essential precursors to the U.S. leadership in the subsequent decision by CITES parties in October of 1989 to transfer of the African elephant from CITES Appendix II to CITES Appendix I and impose a global ban on international ivory trade. While it was recognized that several African countries, particularly in Southern Africa, had stable elephant populations and were able to maintain adequate internal conservation programs, there was no effective mechanism to control international trade in illegal ivory.

The information available to us today shows that the ivory ban was quickly followed by significant declines in the rate of elephant poaching, ivory prices and ivory trade, combined with stabilization of elephant populations in many countries that were previously experiencing declines. It is important to note that there was also a concurrent increase in donor funding to help support anti-poaching and other conservation efforts in range countries following the Appendix I listing—most notably from the United States, including the first appropriation of funds under the Act. It is also significant and gratifying to note that the U.S., unlike some other donor countries, is continuing to fulfill its commitment to elephant conservation.

However, there is no room for complacency. The debate continues today over the impacts of the Appendix I listing on elephant utilization programs in some countries in Southern Africa. Furthermore, a recent report prepared for the last CITES Conference of the Parties in 1994 suggests that poaching appears to be on the rise again, which may be due in part to declines in both donor funding and in wildlife management and anti-poaching budgets in many African countries.

The issues of elephant conservation and ivory trade are very complex and are expected to be a significant focus of the Tenth Meeting of the CITES Conference of the Parties, to be hosted by Zimbabwe in June of this year. Three Southern African countries—Botswana, Namibia, and Zimbabwe—have proposed that the Conference of the Parties agree to transfer their elephant populations back to CITES Appendix II, to allow for a number of trade options including a limited commercial trade in their legal stockpiles of ivory, live animals, and for Zimbabwe in carvings, hides, and leather as well. The Service is currently reviewing these proposals, as well as

the report from a panel of experts appointed by the CITES Secretariat to review trade and enforcement controls in those countries and in Japan, where the ivory is proposed to be exported. During this review, the Service will consult with other Federal agencies and with affected range countries. It will also publish a Federal Register notice that will outline the U.S. proposed position on these and all other CITES proposals and will request public comment prior to the June CITES Conference in Zimbabwe. Regardless of the outcome of these proposals at the Conference, it is certain that the African Elephant Conservation Act will remain a critical link to enable continued active U.S. involvement in African elephant conservation, through both its import control provisions and the grant program.

While this important dialogue is unfolding, we must continue to keep our focus on the positive strides being made as a result of the Act's unique conservation strategy—a small conservation Fund targeted at cooperative, on-the-ground conservation projects in Africa. Implementation of this program has played a directly positive role in the conservation of the African elephant, and an indirect role in the conservation of numerous species that benefit from the conservation of this keystone species.

To date, the Service has funded 48 different projects in 17 African countries affecting over 200,000 elephants. Each project is a cooperative effort with African CITES Management Authorities, other foreign governments, nongovernmental organizations or the private sector. No in-country project is approved unless it has the full support of and has been identified by that country as a priority for conservation. Through this cooperative approach the actual on-the-ground resources directed at African elephant conservation is almost double the $5 million allocated to the program since 1990. Under the Act all but 3 percent of funds allocated to the grant program are used to fund projects. Additionally, no overhead charges are supported by grant funds. All such costs are borne by the cooperators as matching contributions to the project. Thus, 97 percent of all funds allocated by Congress to the Fund are obligated to specific projects.

In implementing this program the Service has also designed a streamlined process that allows for timely approval of projects, and that has the capacity to respond quickly to emergency situations. Since no implementing regulations were deemed necessary, there was no time lag in initial receipt of funds and actual implementation of the program. Furthermore, the grant program is designed to provide quick, short term support for holding actions and other conservation measures, in concert with existing or proposed long range activities, or until such long range activities are in place. In the early implementation of the Act, it became apparent that there was a definite need for such a responsive grant program, and it has become the hallmark of its success.

One of the earliest projects funded was a cooperative effort with the Ministry of Forestry and Wildlife, Central African Republic, and the World Wildlife Fund. A cooperative effort was underway to establish a reserve in the southeastern portion of that country. While funds for gazetting the reserve were anticipated, no funds were available for basic equipment and operations of anti-poaching patrols—hired from local communities—until a cooperative project was implemented under the Act. When the first patrols were put into place, the only signs of elephants in a local clearing within the park were the carcasses of several poached animals. Today over 2,000 individual elephants, young and old, have been identified to be using that clearing. From an observation platform, local school children can watch in awe as dozens of elephants gather together.

In Senegal, the westernmost population of elephants in Africa is now secure. Through a cooperative project with the government of Senegal and the Friends of Animals, an anti-poaching program has provided local community employment and protection for the remaining elephant population. For the first time in years, baby elephants are now seen in this small but genetically valuable population.

In the first years of the program the majority of funding requests and the highest priority projects for funding were proposals submitted by or in cooperation with African elephant range state governments for anti-poaching assistance. Similar to the projects described above, funds have been provided to augment anti-poaching and management support in Cameroon, Congo, Eritrea, Gabon, Mali, Senegal, Tanzania, Zambia and Zimbabwe. Equipment purchased with these funds has ranged from vehicles to radios to field gear.

One of the most innovative anti-poaching projects funded is a cooperative effort with the Southern African Wildlife Trust and several cooperating African government agencies. It consists of a meritorious service awards program for game scouts and rangers in Botswana, Tanzania, ambia and Zimbabwe. This program has provided a much needed morale boost for the individuals who are asked to risk their lives every day as they routinely confront heavily armed groups of commercial poachers.

More recently there has been a shift in focus from anti-poaching projects to other conservation activities that address management needs and increasing human/elephant conflicts, as expanding human populations reduce the amount of wild lands available. In Southern Africa a number of projects have been implemented to assist range state agencies with elephant management programs. A cooperative project with the Zimbabwe Department of National Parks and Wildlife, for example, focused on the development of translocation techniques for elephant family units. Over 1,000 individual elephants were successfully translocated to new range in Zimbabwe when drought threatened hundreds of individuals with starvation and destruction of available habitat. That technique is now being used in South Africa and other range states. A second project in Zimbabwe, in cooperation with Safari Club International, focuses on the development of a manual on elephant population management to be used as part of the CAMPFIRE program to assist local communities in sustainable development.

In this regard it is also important to recognize that the Act specifically addresses the issue of sport hunting. The Act states that "there is no evidence that sport hunting is part of the poaching that contributes to the illegal trade in African elephant ivory, and there is evidence that the proper utilization of well-managed elephant populations provides an important source of funding for African elephant conservation programs." Under this authority and special rule for threatened African elephants adopted under the Endangered Species Act, the Service has been able to make the required biological findings to allow the import of sport-hunted trophies from certain African countries, where it can be demonstrated that the range country has an elephant trophy export quota and that imports into the U.S. contribute to the enhancement of the survival of the species.

The Service annually reconfirms these findings, and continues to allow the import of sport-hunted trophies from Zimbabwe and other countries, as part of those countries' overall African elephant conservation programs. We continue on an annual basis to evaluate these findings, particularly when new information becomes available. Zimbabwe's program, for example, with oversight and regulation by the Zimbabwe Department of National Parks and Wildlife, includes some communal land areas enrolled in the CAMPFIRE program.

Other management projects include investigations into the effectiveness of various forms of deterrents used to discourage crop-raiding elephants in Cameroon and Zimbabwe; training wildlife officers in Ghana about elephant biology and ecology; and elephant population surveys in Cameroon, Chad, Central African Republic, Malawi, Namibia and Tanzania. Projects have also been funded to assist in the establishment of a continent-wide database on elephant populations and in the establishment of the first comprehensive library of elephant resource material.

These are but a few examples of the significant successes of the African Elephant Conservation Act program, demonstrating the wide array of projects and cooperators. I hoped that these have served to illustrate its effectiveness and positive impacts on African elephant protection and management. However, while much has been accomplished, much remains to be done. The annual requests for support of high priority projects greatly exceeds the funds available, and we believe that reauthorization of the Act can make an important contribution to elephant conservation.

In closing, Mr. Chairman, the findings made by Congress in enacting this Act regrettably still ring true today: "Many (African countries) do not have sufficient resources to properly manage, conserve, and protect their elephant populations." The United States must share the responsibility to provide for the conservation of this magnificent species. The principles embodied in this Act are sound. They provide a catalyst for cooperative efforts among the governments of the world, nongovernmental organizations, and the private sector to work together for a common goal—the conservation and continued healthy existence of populations of African elephants. This is not a hand out, but a helping hand. For all of these reasons the Service strongly supports the reauthorization of the Act.

TESTIMONY OF TERRY L. MAPLE, PH.D., ZOO ATLANTA; SCHOOL OF PSYCHOLOGY, GEORGIA INSTITUTE OF TECHNOLOGY

Indlov' ihlatshwa ngabantu bonke kandubub'iwe

(The elephant is stabbed by all before it falls)
Zulu parable

When America's zoo directors behold an elephant, they see it through the eyes of the nation's 120 million zoo visitors. There are roughly 40,000 mammals on exhibit

in the 170 accredited institutions which comprise the membership of American Zoo and Aquarium Association's institutional membership. Only 136 African elephants currently reside in American zoos. They are extraordinarily difficult to properly exhibit, manage, and breed. It will be many, many years until we can proclaim a self-sustaining captive population. Even if we could clone an elephant to obtain a normal adult, we would spend decades nurturing and socializing a long-lived creature with a complex social structure and intellectual powers that rival those of humankind. The successful management of elephants in zoos is our most labor-intensive and expensive form of mammalian husbandry. It is as much art as it is science, and its expert practitioners, the elephant keepers, must be alert and savvy each and every day that they walk among the world's largest land mammals. Zoo professionals respect elephants, while our visitors shower them with affection. The label "charismatic megavertabrate" is a perfect fit with the African elephant.

I rise to support "AECA," the "African Elephant Conservation Act," because I believe that its Grants Program is making a difference in Africa. It is doing what it intended in providing critical financial assistance to support protection, conservation, and management of African elephants in the wild. To date, 17 African countries have benefited from the fifty projects funded with $5,434,025 of programmatic money and $8,651,332 in matching funds. The identified needs are greater than the sum expended by a factor of twenty, but we have made an important start with this program. The Grants Program of the African Elephant Conservation Act is an example of American leadership at its best. We are fact-finding; we are solving problems; we are team-building; we are making a difference in the field.

As one who must live by a budget based on a competitive marketplace, I recognize Me importance of cost-effective, well-designed, focused, and flexible programs. AECA was designed to encourage donations from private sources, and the record demonstrates that this strategy has been successful. Therefore, I regard this program as a classic example of a public-private partnership. The key word is "partnership," as our government must be an effective and willing partner with other responsible governments and other conservation organizations if we are going to save elephants in Africa. In my opinion, there is a great potential to dramatically grow the private side of the match to help fill the gap between proposed and funded projects. I will do what I can to encourage expanded participation by the nation's zoos. Working together, we will accomplish a great deal more in the future.

Because the needs are great, and the funding at present modest, AECA was also designed to "provide quick, short-term support for holding actions and other conservation measures in concert with existing or proposed long-range activities or until such activities are in place." Experts from the field have prioritized well, ensuring that our contributions are applied to the most critical endeavors, but in ways that contribute to a holistic plan. These are thoughtful programs administered by experienced personnel who are committed to long-term conservation action. America's continued involvement in such programs instills confidence in situations where morale can fluctuate wildly on an eventful day. Such conditions exist in Central Africa today, where Zoo Atlanta has been monitoring a small group of elephants in Rwanda's Akagera National Park. The virtual survival of small groups of elephants, gorillas, and other forms of life depends on equally small groups of dedicated conservationists and the modest resources that support them. AECA may be a relatively small program, but it sustains work and vigilance of enormous importance to the world.

Africa's elephants are huge and visible creatures. Their decline throughout their range has been swift and dramatic. They are a symbol and a metaphor for our protection efforts. If we can't protect elephants, what can we protect? Habitat destruction and competition with humankind for access to land have contributed mightily to the elephant's decline, while poachers continue to annihilate whole populations of elephants throughout Africa. In 1990, I visited a site in Kenya's Tsavo National Park, where two adults and one baby elephant were butchered by poachers. Poachers had cut off their faces to remove their tusks. I had never witnessed an uglier act of genocide. We can save elephants in Africa, and we should do it. Saving elephants contributes to the tourist-based economies of many African nations, but it also contributes to the quality of life on earth. We must recognize that elephants are creatures valued worldwide by people who want only to see them realize their full potential as social, sentient beings.

The Republican Senator from Georgia, Paul Coverdell, recently identified the 104th Congress as the "most aggressive campaign to protect the environment in recent history." He cited eleven major environmental initiatives which will provide a "safer and healthier environment for all," including the "Everglades Protection Amendments to the 1996 Farm Bill." (This legislation was also strongly supported by Speaker Newt Gingrich.) Senator Coverdell observed that water quality would

be improved for both humans and the "many thousands of plants, animals, and fish species, many endangered, that depend on the fresh water that filters through the Everglades." Senator Coverdell suggested that these initiatives set a new course by basing its decisions on current, real science.

AECA is based on sound science. It is a small fund getting big results. It is leanly administered, prioritized, matched one-to-one by other, largely private, sources, focused, fast, and flexible. Republicans and Democrats alike should be proud to support legislation such as this carefully crafted, cost-effective, well managed program enacted by Congress in 1988: The African Elephant Conservation Act. As Mr. Coverdell has concluded:

"History will judge this Congress on its merits, and in terms of environmental protection it must surely be said—they were committed to conservation for future generations."

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TESTIMONY OF RON MARLENEE, DIRECTOR OF LEGISLATIVE AFFAIRS, SAFARI CLUB INTERNATIONAL

Chairman Saxton and members of the Subcommittee:

My name is Ron Marlenee, I am the Director of Legislative Affairs for Safari Club International (SCI). We appreciate the invitation to appear and testify before the Subcommittee. As required by the House rules, I have attached further infommation about our organization, including the grants that we have received from the Federal government.

SCI supports the passage of H.R. 39, which would amend the African Elephant Conservation Act (AECA) by extending the appropriation authorization through fiscal year 2002. The money appropriated under this authorization goes into the African Elephant Conservation Fund and to the Secretary of the Interior, for administration of the fund.

In our view, the African Elephant Conservation Act is an extremely important piece of legislation because it assists African countries in meeting conservation goals for a species that we all believe is important. It does this primarily through the grants provided by the AECA. These grants provide work "on the ground" in the countries where the elephants occur. They are used in coordination with the countries in which the work will be done. The grants are excellent examples of cooperative conservation.

One of the reasons that the AECA is necessary is that the Endangered Species Act (ESA) is long on mandates and sanctions and totally devoid of recovery support. 80% of the mammals listed under the ESA are foreign, yet that Act provides no benefits for foreign species. The AECA and its African Elephant Conservation Fund should stand as an example and model for the conservation of species that occur in other countries. The AECA is helping fill the gap left by the ESA in a small but important way.

We understand that over 300 proposals, totaling $240 million, have been received by the U.S. Fish and Wildlife Service, approximately $235 million of which have had to be denied for various reasons. Since the inception of the AECA, 66 grants have been issue for 50 grants in 17 African countries. A total of $5,408,435 has been allocated through these grants. We have attached a descriptive summary (obtained from the U.S. Fish and Wildlife Service) of all of the projects that have been undertaken.

In spite of the need, the Administration has never asked for the full $5 million annual authorization. For the last three years, it has dropped its request to $1,169,000, which is below the level of the FY 1992 and 1993 requests. The appropriations have never reached the authorized level either. The highest appropriation was in FY 1995, for $1,166,767. Last year, there were serious concerns that the request and/or the appropriation would be zeroed out. Along with several other organizations, we actively supported the appropriation and a total of $600,000 was eventually appropriated. We strongly recommend that the authorization of $5 million not be changed.

The bill would not change the level of authorization, which is currently $5,000,000 annually. We agree with this approach. We would like to note, however, that appropriations have never approached the level of the full authorization, with the highest appropriation being $1,166,767 in 1995.

Your invitation to testify asked us to address the various grant projects that we have under the AECA. Accordingly, we will briefly discuss our three grant projects—two in Tanzania and one in Zimbabwe.

The matching grant for first Tanzanian project is $36,050 (with total project costs being more than $60,000) and it was for a pilot program to train government game scouts to gather elephant data and pinpoint it geographically using hand-held Global Position System devices. The data is needed for wildlife management. Game scouts accompany safari hunting parties into the field at the expense of the hunter. The grant funds the training of Scouts to collect elephant data while in the field. It equips them with Magellan GPSs to pinpoint the location to accompany their recorded observations. It also provides a central computer for data storage. In effect, it has helped to extend the training of Game Scouts to also act as biological assistants while in the field.

A second phase of the grant has been approved to allow an increase in the number of Game Scouts that can be trained. An additional $25,950 (out of a total project cost of $69,200) will begranted. Other donor agencies such as GTZ have adopted this approach and are training Game Scouts and even Village Scouts in areas of the famous Selous Reserve where they have other on-going conservation projects. Conservation organizations are adopting it as a model.

The program also teaches the game scouts to evaluate the elephant populations from the point of view of their hunting trophy quality. This is important because it maximizes the revenues that can be obtained from a use of this natural resource, while minimizing biological impact of the program. The revenues are a key incentive to conservation, and provide much of the funding used for such conservation. I have attached a paper entitled "Returns from Tourist Hunting in Tanzania," which describes in detail the economic importance of this activity. It states that foreign safari hunting (which is called "tourist hunting ") had a value of more than $10 million for Tanzania in 1992.

The second matching grant was for $84,240 to help fund a survey of Tanzania's elephant populations, which may be the largest in Africa. The total project cost is $216,110. It will fund aerial surveys in three specific areas, completing the collection of data which will provide a new baseline for elephant populations in Tanzania.

The third matching grant is being carried out in Zimbabwe and is for $85,OOO to support the CAMPFIRE program. The total project exceeds $150,000. CAMPFIRE stands for Communal Areas Management Programme for Indigenous Resources. Essentially, CAMPFIRE is a major experiment in granting ownership rights and responsibilities over wildlife to local people living in rural areas. It has been operating for several years and is showing that when people have a stake in the natural resources where they live, they are given an incentive to conserve those resources. Our grant in Zimbabwe is for the specific purpose of developing a training manual for use by local villagers to gather the necessary biological information for determining sustainable offtake quotas from wild populations. It is similar in concept to the Tanzania program, in that it provides a cost-effective way to obtain necessary data. This grant is different in that it focuses on local people and enhances their involvement by empowering them to collect and interpret the data together with enforcing the rules governing the uses of their wildlife.

The core ideas of CAMPFIRE are being emulated in many countries. Conservationists and government resource managers agree that if wildlife does not have value and meaning to the people who must share land and put their livelihood at risk with wildlife, then it has little chance of surviving very far into the 21st century. I have attached a brief description of the CAMPFIRE program.

I would like to illustrate the point about sharing with wildlife by drawing the Committee's attention to this picture [show picture]. It is a blow-up taken from a Newsweek Magazine article published on September 18, 1995 and it shows an elephant coming through someone's laundry line somewhere in Africa. Imagine for a moment that it is your backyard, and consider that the elephant is the world's largest land mammal and is neither reluctant or hesitant in snuffing out human life. Or better yet, imagine that instead of being a Member of Congress you live in a rural area and depend on subsistence and cash crops scratched from an impoverished soil with hand tools. Then imagine your feelings as you watch a herd of elephants rampaging through your fields in a moonlit feeding frenzy, destroying everything in their path, including your home. To live with and tolerate this species takes requires some incentive. Without the incentive the pest control expert, called a poacher, is alerted and instead of the elephant having support and friends, the poacher gains new allies.

I would also like to draw the Committee's attention to several articles that were published in the U.S. News & World Report on November 25, 1996. I have provided reprints of the articles for the Committee, because they tell in a simple but eloquent

way about the importance of providing a value to wildlife like elephants if they are going to survive. David Western, the Director of Kenya's Wildlife Service, says that "elephants are the darling of the Western world, but they are enemy No. 1 in Kenya." He points out that 400 Kenyans have been killed by wildlife in the past six years, most of them by elephants.

I have also provided the Committee with a copy of a recent book entitled *Wildlife and People: the Zimbabwean Success,* by one of Africa's premiere wildlife scientists, Dr. Graham Child, former Director of the Department of National Parks and Wildlife Conservation in Zimbabwe. I would like to draw your attention particularly to his detailed analysis of hunting in the chapter on "Hunting for Conservation," beginning at page 180.

Dr. Child begins the chapter with, "as in much of the world, recreational hunting has been a major force behind preserving wildlife and wild places in Zimbabwe." Child estimates that the overall value of the wildlife industry (hunting, tourism, food production, etc.) for Zimbabwe at over $200 million annually. He ends the chapter with the following statements on hunting:

"Recreational hunting [NOTE: this is the same as 'tourist hunting' in Tanzania] is an efficient way of marketing wildlife. A few animals are sold for high prices with little effect on the productivity of wild populations, or their ability to increase .... This means that it can be a valuable source of income even while populations are low and recovering. It is also a service and labour-intensive industry which is applicable in areas unsuited to general tourism. As it requires relatively little specialized capital development and has little impact on the local environment, it does not foreclose options ....

"High prices for the removal of a few animals maximizes the return on the harvest of ecological energy, placing less stress on the ecosystems for a given quantity of human welfare....

"The high service component, representing human effort and initiative, makes it possible to raise the return from a safari operation .... With high under-employment in Zimbabwe, especially in the remote rural areas ..., any well-paid labour-intensive activity that reverses the flow of wealth and people to the cities is a boon."

We believe that it was the intent of Congress and this Committee to exempt sport hunting trophies from USFWS import restrictions. This Committee found that sport hunting was not part of the problem. It was actually a very important part of the solution. All revenue and conservation incentives are important to elephant range nations. We hope that in the AECA reauthorization process or in some other way you can clarify the Committee's original intent to exempt sport hunting trophy imports in further support of elephant range nations' professionally regulated programs. Such imports need to be protected as long as they are from licensed, regulated sport hunters and comply with CITES. Because of programs like CAMPFIRE, AECA, professional management, and the revenue raised by trophy hunting elephants, elephants are increasing in population at over 5% per annum. CAMPFIRE is constantly threatened and jeopardized by animal extremists' attempts to stop the import of those few elephant trophies by threatening the USFWS offices of Management Authority and Scientific Authority. The legitimate wildlife management programs in Africa need to be protected and fostered.

In summary, we support H.R. 39 because it will allow the continuation of an excellent program that puts money on the ground where the wildlife occurs, and does it in a way that works with, instead of dictates to, the people and governments of other countries.

TESTIMONY OF GINA DE FERRARI, DIRECTOR OF TRAFFIC, WORLD WILDLIFE FUND

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to appear here today. I am Gina De Ferrari, the Director of TRAFFIC at the World Wildlife Fund (WWF). WWF is the largest private conservation organization working internationally to protect wildlife and wildlife habitats. We currently support conservation efforts in many key African elephant range states.

I am here today to convey WWF's views on the effectiveness of the African Elephant Conservation Act (AECA) of 1988. I would like to review what this law has accomplished to date and its importance for future conservation initiatives.

First, l want to express WWF's appreciation for the concern and interest that this Subcommittee has shown for the conservation of the African elephant, one of the world's most magnificent and visible symbols for global conservation. We want to thank you, Mr. Chairman, for convening this hearing and we applaud the Subcommittee for taking a leadership role in securing passage of the African Elephant Conservation Act.

We understand that the President's budget request for FY1998 contains $1,000,000 for the African Elephant Conservation Fund. WWF strongly supports a doubling of this amounts which would fall within the authorized level of $5,000,000. As noted earlier, the elephant funds have generated more than matching support from other sources over the six years of the program's existence, and there is little question that many times the amount appropriated by Congress will come from the private sector.

WWF first testified before the House regarding elephant conservation on June 22, 1988. At that time, a dramatic decline in many elephant populations over the course of a decade had precipitated enormous concern among African nations and the global conservation community. From an estimated 1.2 million animals in 1979, elephant numbers dropped to about 600,000 by the late 1980s, a decline of as much as 50 percent in just ten years. Shrinking habitat and conflict with rapidly expanding human populations played a role in the decline, yet by the mid-1980s it was clear that the overwhelming factor in the steep drop in elephant populations was poaching for the illegal ivory trade.

During its peak over a decade ago, as much as 800 metric tons of ivory were exported from Africa each year, equivalent to the deaths of up to 80,000 elephants annually. Geographically, the losses were distributed unevenly, with some elephant populations in east and central Africa suffering devastating declines, while others fared better. In particular, elephants in several southern African countries were well insulated from poaching due to effective management and conservation programs.

CITES grappled unsuccessfully with the massive outflow of illegal ivory from the African continent through an export quota system that ultimately failed to illicit ivory products out of global trade. The global response was the 1989 CITES ban on commercial ivory trade, a measure adopted by the vast majority of CITES member nations. Although controversial among some elephant range countries, the moratorium has proven important to the recovery of many of the elephant populations hit hardest by poaching. The upcoming CITES meeting in June promises a lively debate on the future of the ivory trade ban, as the African elephant clearly presents some of the most challenging issues in wildlife conservation and management today, and the needs and priorities associated with addressing these issues vary widely among African countries.

The ivory trade ban was a stop-gap measure targeted at a crisis situation. The issue we are discussing here, Mr. Chairman, which is in many ways more critical over the long term, is international funding for wildlife conservation. To this end, the African Elephant Conservation Act has played a crucial role. The Act established the African Elephant Conservation Fund and authorizes up to $5 million per year for elephant conservation projects. Although the fund has never been appropriated to the amount fully authorized, it has proven an important instrument for helping African nations in their efforts to rebuild elephant populations hit hardest by poaching as well as for addressing the growing array of elephant conservation and management needs throughout the continent.

To best understand the importance of monies provided from the AECA, one would have to consult with the governments and wildlife officials and experts of the 17 countries which have benefited from its support. WWF has conservation programs or projects in 16 African countries and oversees several projects which have been the direct recipients of support from the African elephant fund. Based on our own field reports and contact with experts across Africa, the fund has been an important source of support for projects that otherwise would not have been possible.

The African Elephant Fund, administered by the U.S. Fish and Wildlife Service (FWS), has provided about $5.4 million over 8 years to elephant conservation activities in range states throughout Africa. Mr. Chairman, this is a very modest program—$5.4 million has supported 66 grants in 17 African countries. In our view, the Fish and Wildlife Service has been both efficient and effective in managing the elephants grant program.

Through many years of developing and managing international conservation programs and projects, we at WWF have learned many important lessons. One is that successful conservation initiatives require commitment and continuity. The African Elephant Conservation Fund has in fact been the only continuous source of new funding for African elephant conservation efforts since the 1989 ivory trade ban went into effect. Unfortunately, funding from other sources has proven erratic. In the immediate aftermath of the ivory trade ban, when the world was sensitized to the elephant's dilemma, funding flowed from various unilateral and multilateral bodies and NGOs to projects in many parts of Africa. Since then, however, funding has largely dried up. A 1995 review cosponsored by WWF and the U.S. Fish and Wildlife Service, with support from the elephant fund, revealed that many African wildlife and parks departments have suffered severe budget cuts, some or, the order

of 90 percent or more over four years—as was the case with Tanzania from 1989-1993. This not only underscores a very serious trend, but also makes the monies authorized by the AECA even more valuable and needed.

From WWF's perspective, some of the strengths of African Elephant Conservation grants program ...include:

*Emphasis on small grants. By emphasizing small grants, FWS is able to move monies relatively quickly with minimal bureaucracy, while also ensuring that a wide spectrum of projects is supported. The African elephant inhabits some 35 countries, and conservation needs and capacity vary widely. The Service has chosen to provide maximum reasonable flexibility by keeping grants small, while maintaining a broad focus to ensure funding for meritorious projects throughout sub-Saharan Africa.

*On-the-ground focus. Virtually all monies coming from the fund go directly to the field where needs are greatest; just 3 percent goes for administration. Moreover, the Fish and Wildlife Service has been responsive to emerging needs, as witnessed in 1993 when an anthrax outbreak threatened Namibia's elephant population. Emergency assistance was provided from the African elephant fund, and helped head off a potential catastrophe.

*Balanced set of projects. In the beginning, the African elephant fund supported mostly anti-poaching projects, as these were the immediate priority. Since then, we are encouraged that, while grants are still targeted at clear and identifiable needs, the fund supports not only anti-poaching but many other activities, such as elephant population research and censuses, efforts to mitigate elephant/human conflicts, investigations of the ivory trade and cataloging ivory stockpiles, elephant translocations, and identifying new techniques for elephant management.

*Cooperation with range states. All FWS projects receive approval from the host-country government before proceeding. We have found that there is a very clear process and commitment to consultation and, where possible, collaboration with African governments.

*Matching funds. Since the elephant grants program was initiated in 1990, more than $8.6 million in matching contributions has been spent on the various projects supported—a match ratio greater than 3:2. In addition, the fund has played a catalytic role in larger initiatives, such as in the Central African Republic's Dzanga Sangha Reserve. In a major effort to protect important wildlife habitat and biodiversity by working with surrounding communities to link conservation with development needs, African elephant funds are used to support three teams of game scouts that patrol the Reserve and combat poaching. In partnership with WWF and others, the U.S. government has been able to play a focused role in the conservation of this biologically-important area that is important for forest elephants as well as for many other unique species.

*U.S. leadership. Last but not least, the AECA has allowed the U. S. to put its money where its mouth is and set an example for other countries to follow. I would like to emphasize the importance ofthe fact that FWS support has not been curtailed once the poaching crisis abated. It is such only through such continuing support that the long term survival of African elephants will be realized.

The list of specific initiatives supported by the African Elephant Conservation Act is impressive and I would encourage members to review it. (The list of WWF projects funded under this Act is attached to this statement.) These projects have provided critical seed money to new elephant conservation initiatives in Africa, provided supplemental funds for existing projects with needs that could not be met from other sources, and helped build conservation infrastructure within elephant range states. With projects receiving matching support from organizations such as WWF, Safari Club International, the Wildlife Conservation Society, and others, the African Elephant Conservation Fund has clearly multiplied its conservation benefits substantially.

WWF believes that the positive results of the projects supported by the African Elephant Conservation Fund are the most important signs of the strength of the Act. They have allowed the U.S. to play a lead role where it really counts—funding initiatives in range countries to help ensure the survival of this threatened species in the wild.

Although it is sometimes tempting to assume that once the immediate problem is addressed, the problem is solved. However, securing the future of Africa's wildlife requires a long-term commitment. Therefore, the continuing Congressional support for this program will be critical to the long-term viability of many elephant conservation initiatives—and I urge Congress to maintain the strong support it has shown to date.

KEY WWF PROJECTS FUNDED BY THE AFRICAN ELEPHANT CONSERVATION ACT

In Central Africa: Central Africa is home to as many as a half of Africa's elephants—the forest elephants. The establishment of protected areas in this region lags far behind that of southern and eastern Africa, and heavy poaching continues to pose a serious problem. Funding provided by the FWS has provided the impetus for the establishment of a network of such protected areas, and has leveraged funds from WWF and the Wildlife Conservation Society, as well as generous funding from the Dutch and German governments and the European Union. As a result, notable progress has been made in protecting the elephant populations in the region. WWF has been working in the following areas on the projects described below.

Dzanga-Sangha Dense Forest Special Reserve and L'zanga-Ndoki National Park. Central African Republic

The southwestern region of the Central African Republic (CAR) contains the country's last stronghold of the diverse lowland tropical forest characteristic of central Africa, which is home to a significant population of elephants. The government of CAR and WWF have worked together to create a multiple use reserve (Dzanga-Sangha) and national park (Dzanga-Ndoki) to protect this unique ecosystem. This project seeks to integrate wildlife protection, tourism, research, trailing, rural development and preservation of the cultural integrity of the BaAka pygmies to conserve this valuable forest. The FWS has supported elephant protection, ecological monitoring and coordination in the Dzanga-Sangha project for nearly 6 years. The anti-poaching operations supported by FWS include a force of 30 guards and have resulted in a marked decrease in poaching and a significant increase in the elephant population, and the recorded density of 3.18 elephants per square kilometer is one of the highest—if not the highest—ever recorded in the forests of Africa. Over 2,000 individual elephants have been observed at the Dzanga clearing, and only rarely are elephants shot in the park.

A major focus of this project has been the participation of local people; it is one of the first conservation initiatives in the lowland tropical forests of Africa to integrate conservation with the needs of the rural poor. As such, it serves as an important prototype for future community conservation efforts in Central Africa, in which local people realize direct benefits from wildlife conservation.

The objective of the project—to stop large scale poaching of elephants in the core area of Dzanga-Sangha—has clearly been reached. FWS support has made it possible to maintain an active anti-poaching effort that has resulted in an expanding elephant population—a situation that is unique in the central African region. Clearly, the steps that have been taken are working, and need to be continued in order to keep protecting this important elephant population.

Gamba Protected Areas Complex—Petit Loango Reserve Gabon

In April 1990, WWF joined forces with the FWS to provide emergency support for the conservation of elephants and other wildlife in the Petit Loango Game Reserve in Gabon. The reserve has a great diversity of habitats and species, covering 500 square kilometers of seashore, mangrove, swamp and tropical forest. Established in 1966, the reserve is a priority site for elephant conservation.

Recent increases in poaching for meat and ivory pose an immediate and severe threat to elephants in the reserve. Under this project, which is ongoing, an anti-poaching unit has been sent to patrol the area and to meet with rural communities to explain the problems associated with poaching. There measures are designed to give the government the time to develop a long-term conservation program for Petit Loango and adjoining areas in the entire 10,000-square-kilometer Gamba Reserve Complex. Emergency anti-poaching efforts such as those at Petit Loango are buying time—time needed to develop sound, long-term conservation and development programs that demonstrate conservation benefits to communities and, in so doing, enlist the critical support of local people to reduce poaching.

Bangassou elephant censusing project. Central African Republic

Little information has been available on the status of elephant populations in the Bangassou forests of southern CAR, but there have been reports of high elephant density and heavy poaching in the area. The purpose of this project—which began 3 years ago, and is near completion—is to estimate the numbers and distribution of elephants and chimpanzees remaining in those forests, to assess the impact of ivory poaching, and to assess the general conservation potential of the forests. Such surveys and analyses are the precursors to establishment of protected areas.

In Southern Africa: Elephant conservation problems in southern Africa are increasingly related to human-elephant conflicts, as elephant populations outgrow the available habitat within protected areas. However, poaching in parks, and disease

outbreaks are still of concern and WWF has undertaken projects in the following areas.

Chobe National Park. Botswana

WWF assisted the government of Botswana through the preparation of an elephant management plan for Chobe National Park in 1994. Chobe National Park is one of the most significant protected areas in southern Africa. It has more that 400 wildlife species and protects habitat for one of the largest known elephant populations on the continent. Recent elephant population estimates for northern Botswana (with Chobe as an important core area) are 70,000—highlighting the importance of developing a management plan here.

Namibia Desert Elephants: anthrax outbreak

In response to an outbreak of anthrax in Namibia in 1993, approximately 30 desert elephant were inoculated against the disease with emergency funding from FWS. The Namibian elephant population is one of the most mobile on the continent, and it is very easy for an infectious disease like anthrax to wipe out a large population in a very short time. Namibia has approximately 10,000 elephants that could have been threatened by the disease had it not been caught in time. In addition, elephant populations in neighboring countries also could have been susceptible to the disease.

In addition to protecting the entire elephant population of the region, it was particularly important to protect the small population of approximately 50 desert elephants, as this population is unique in that it has developed characteristics that allow it to survive in the desert.

Anti-poaching unit. Zambia

Zambia is home to approximately 25,000 elephants, and at the inception of this project in 1991, poaching was a serious threat. Under this project, WWF helped the Zambian government establish an anti-poaching unit, which resulted in a significant breakthrough in the fight against poaching. Several poaching rings were broken and many individuals were arrested and prosecuted.

The international headquarters for the World Wildlife Fund has also received support through the African Elephant Conservation Fund for projects in Cameroon to assess the impact of crop raiding elephants, and elephant related research in Kenya. In addition, the TRAFFIC office in Malawi, a joint program of WWF and IUCN, has received funds to monitor the ivory trade and has undertaken a survey to quantify existing ivory stockpiles. We would be pleased to provide the Subcommittee the details of these projects upon request.

The Future

Priorities for future WWF projects for which we will seek funding under the African Elephant Conservation Fund will focus on surveys of elephant populations and establishment of additional protected areas for the forest elephants in central Africa. Central Africa is many years behind east and southern Africa with respect to the establishment of protected areas in which elephants can find refuge, yet as many as half of Africa's elephants live here. The Dzangha-Sangha project would serve as a model for future WWF work in the region. It would be our goal to establish a more expansive system of protected areas in central Africa and in doing so, to involve local communities and make them partners in the effort to protect elephants.

STATEMENT OF DR. BRIAN CHILD

Mr. Chairman, I thank you for this opportunity to participate in this oversight hearing on the African Elephant Conservation Reauthorization Act of 1997. I am Dr. Brian Child. I obtained a doctorate from the University of Oxford as a Rhodes Scholar, with my expertise being land use and wildlife economics. I was instrumental in developing the highly successful wildlife industry on private land in Zimbabwe. I also coordinated and developed the CAMPFIRE program as a senior official in the Zimbabwe Government, where I spent 12 years. I am now developing an equally successful program in Zambia. I have worked or visited community wildlife programs throughout Africa, have advised USAID, the World Bank, NORAD, UN/FAO and several African governments, and have published extensively. I live and work amongst the people and wildlife of Africa, and have been a dedicated conservationist since my earliest memories.

This submission thanks the AECA for financial support received. It suggests that support should be continued, but that this support is targeted towards longer term solutions. Since long term solutions are usually based on utilizing wildlife, and kill-

ing animals is always contentious, this submission spends some time justifying the sustainable use approach. Note that this approach is supported by mainstream conservation and development agencies and is only considered controversial by fringe groups whose concern is with the rights of animals, rather than biodiversity conservation.

Mr. Chairman, we in Southern Africa have recognized and accepted that conserving wildlife costs money but that this expenditure must be justified in a situation where people die for lack of medicine and food. This is why we are evolving pragmatic, economically sustainable, approaches. This is also why the external assistance offered to the range states by the AECA is extremely important for securing the long term survival of these species and the maintenance of their habitat. I would like to convey my strong support for the passage of H.R. 39, which would amend the AECA by extending the appropriation authorization through fiscal year 2002. The funds provided under the AECA, if appropriately used, can present important opportunities for maintaining sustainable wildlife conservation. However, this potential depends on using funds for wildlife conservation programs that are appropriate. These funds should support Africa's determination to manage wildlife for the benefit of her people in a dual approach which establishes parks and protects the wildlife inside them but which also promotes conservation through sustainable use outside them.

Southern African Elephant Populations

The AECA was enacted in 1988 in response to the declining elephant populations in many parts of Africa. However, it is important to note from the outset, that in many countries in southern Africa elephant populations where not declining. Indeed they have been steadily increasing over the past two decades. This is supported by regular surveys, the high quality of which has been acknowledged by CITES and verified by Dr. Ian Douglas Hamilton, the reknowned elephant expert of Kenya. These independent assessments were required to combat malicious misinformation campaigns designed to discredit the success of southern Africa's elephant management.

We welcome increased emphasis on CBNRM

The review process in the Act has shown the effectiveness of some southern African elephant management programs, and as a result we have been the recipients of several grants under this Act for which we extend out thanks. Initially the highest priority projects for funding were proposals for anti-poaching assistance. Such measures are valuable to combat short-term problems. For example, in Zambia, two anti-poaching projects were funded: one is a joint program of the World Wildlife Fund and the Zambia Anti-Corruption Commission to establish a Species Protection Unit to assist in elephant anti-poaching efforts; and the second is a co-operative project of the Ministry of Tourism and Natural Resources and the African Safari Club of Washington, D.C. to provide anti-poaching equipment and assistance to the Remote Game Scout Program for the (FY90, FY91, & FY95). Several other countries in Africa have also received funds to augment anti-poaching projects and this support has some positive effects on the elephant populations.

We particularly welcome the change in focus of the AECA from anti-poaching activities to local management programs, and we encourage a continuation of such support. In our experience, programs that assist local communities and governments to manage their wildlife resources in the appropriate social, cultural and economic context have the greatest chance of success in the long term.

Importance of landholders and communities

I would like to emphasize the importance of a dual strategy that addresses short term problems like poaching by providing strategic funding but which also strengthens the long-term commitment of local communities to elephant conservation by ensuring that they participate and benefit from the management of wildlife on their land.

This is a great challenge. Rural populations in Africa are more dependent on the natural resource base than any other region in the world. People and wildlife share the land, and wildlife, particularly elephants, can represent a serious threat to the survival of people. For example, in Kenya between 1989-1996, 354 people were killed by elephants and another 235 were injured. This was more people killed by elephants, than elephants by people!

In Africa, like anywhere else in the world, peoples' first priority is survival, not conservation. Therefore, if the elephant is to survive and flourish outside of protected areas, it must contribute to the survival of local people, rather than threaten their survival. Otherwise the fate of the elephant will be similar to that of some of the larger, dangerous species here in the US such as the mountain lion or wolf.

Recent experience in Africa has shown that when elephants becomes a source of economic benefit to those who live with them, this creates an incentive to conserve them and this can translate into wildlife conservation programs that are both sustainable and effective.

"Farmers—more than hunters [or poachers] threaten rare species," Newsweek, September 18,1995

In a far-reaching conceptual advance, IUCN's Sustainable Use Specialist Group for Southern Africa (SASUSG), has pointed out that the primary threat to wildlife (including elephants) is loss of habitat to competing land uses like livestock and crops. To emphasize just how real and over-riding this threat is, more than 90% of the large herbivore biomass in Africa is now domestic stock, implying just how much wildlife has been lost. These insidious losses are more serious, more long-term and more far-reaching than the highly publicized and dramatic losses to poaching.

Having identified the primary threat as competition for land, it follows that the survival of wildlife will depend on it becoming economically competitive. It then follows that conserving wildlife depends on sorting out economic mechanisms such that they reflect the comparative economic advantage of wildlife. This is achieved by two things: ensuring that landholders and communities are the primary beneficiaries of the wildlife on their land; and adding value to wildlife and its products to make it more competitive.

Therefore we believe that the Act's change in focus to local management programs is a big step in the right direction but we believe there is much more that can be done to maximize the effectiveness of this Act. Further action should recognize that the primary threat to elephants in the long term is loss of habitat, and should therefore support measures to add value to elephants, and to encourage the implementation of suitable institutional structures that ensure that these benefits accrue to the people on whose land elephants live. There will still be times and places where the support of old-fashioned law-enforcement will be necessary. Money will also be required. However, increasingly, the efforts of several African Governments to develop and implement a sound policy framework will require support, often through measures that depend more on dialogue and cooperation than financial aid.

The future of wildlife will depend on markets and trade. For the sustainable use to work in the long term, and there is no realistic alternative, we will have to change the perspective that trade inevitably leads to extinction, and develop conditions so that trade leads to conservation.

The way to make sustainability a reality is to give individuals the incentive and rights to participate. In supporting market-led approaches like those adopted in southern Africa, US Vice President Al Gore remarked in his treatise on environmental policy, *Earth in the Balance,* "one of the most effective ways to encourage market forces to work in environmentally benign ways is to give concerned citizens a better way to take the environment into account when they purchase goods or make other economic decisions." For Zimbabwe, Zambia and many other range states this "better way" is CBCD. And it is clearly in the best interests of wildlife conservation for the AECA to support programs that give local communities sufficient incentive to protect resources.

Community-Based Conservation and Development

The southern African states support nearly half the world's elephants. In these countries there is a strong movement to complement traditional protected area-based conservation with sustainable use programs and devolved community-based wildlife management. Southern Africa's pioneering work has been applauded by most mainstream conservation and development agencies. However, because this approach involves using and sometimes killing individual animals, including elephant, it is often subject to vitriolic attack from fringe conservation groups. Because of this threat and the associated publicity, I have provided a fairly detailed justification of the sustainable use approach. We believe that the future of Africa's wildlife lies in this approach, and we wish to develop a broad understanding and support for it, especially in important consumer countries like the USA since the consumers (you) are as important to successful sustainable use as the producers (us).

A new conservation paradigm

Traditionally, conservation has been based on centrally-managed protectionism. This approach is no longer appropriate for countries that suffer acute poverty and where people are largely dependent on natural resources. It is no longer appropriate in emerging democracies where local people are determined to be represented and to manage their own resources, not have management imposed on them by central or international agencies. Wildlife cannot be put into a black box and removed from economic reality or from its interaction with the people who live alongside it. It

must benefit people, and it must pay for itself, and it must be theirs to control, otherwise it will be replaced.

The traditional system for managing wildlife is also highly centralized with much in common with centrally planned economies. The recent demise of these indicates the future of conservation if a new approach is not initiated.

In the last ten years strategies for conservation and wildlife management in Africa have seen dramatic changes. These changes resulted from the failure of the traditional "projectionist" approach to conservation, as witnessed by the ever decreasing wildlife habitat, growing threats to certain key species—such as the elephant and rhino—and threats to biodiversity in general. The protectionist approach was based upon an assumption that humans and wildlife could not co-exist and must be separated, creating a conflict between the objectives of human development based on use of resources and conservation, to the detriment of both.

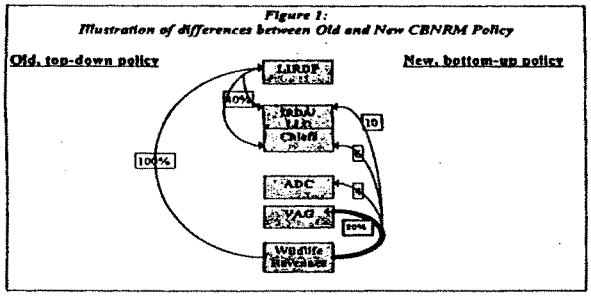
Continue to protect Parks, but ADD a new approach sustainable use outside them

Faced with this dilemma, new strategies for conservation have been developed in Africa, most notably within the Southern Africa Development Community (SADC) region. These strategies focus on complimenting and replacing aspects of the protectionist approach, rather than dismantling it entirely. Thus southern Africa retains the most extensive network of designated National Parks—completely protected areas—of any region in the world, covering approximately 15% of the total land area of the SADC region.

It is for the management of wildlife outside these areas that new strategies have been developed. These strategies focus on harnessing socio-economic forces to conserve wildlife. At the core of these strategies is the recognition that to succeed, conservation must address the link between the needs of the people and the needs of wildlife.

In Southern Africa, in particular, great strides have been made in developing a new conservation paradigm. Instead of being treated as a "priceless" non-resource, wildlife is recognized as an increasingly valuable resource which should and can pay for itself. The system for governing wildlife is also turned on its head. Instead of being centrally-planned, proprietorship of wildlife is devolved to the landholder, and the system is designed to self-regulate. Self-regulation occurs through the marketplace and by establishing mechanisms for community consensus and control. In essence, the benefits from wildlife are devolved to landholders and communities. For the first time, wildlife gives these local communities the financial resources to develop themselves. They no longer have to depend on the patronage of bureaucrats or donors. Decisions are made democratically in public meetings. This has dramatic effects. It introduces an effective system of grass-roots democracy. Communities begin to do things for themselves, and in doing so begin to over-come a crippling sense of dependency and helplessness. This transformation then releases the energy of these communities to develop themselves, making the process sustainable. The result is more wildlife, more democracy, more economic development and people with a greater sense of self-worth.

This new approach revolutionizes the governance of natural resources, and indeed governance in general, by empowering grassroots communities to manage their affairs through a participatory and democratic process. The following diagram, describing a Zambian CBNRM program, illustrates these dramatic, enlightened and far-reaching changes.



If Americans understood that these programs promote human-rights, human well-being and democracy, and lead to both rural develop and wildlife conservation, they would undoubtedly support them. Attempts to portray these cutting-edge programs as a cover for killing elephants are simplistic, naive and mischievous, and indicate an inability or unwillingness on the part of the critics to understand their far-reaching and positive implications.

Principles of the new approach

The principles underlying these programs are the principle underlying democracy and sound management. They have been extensively analyzed but, in essence, they ensure:

•that management is devolved to landholder communities and is democratic, transparent and accountable;

•that local people 'own' resources, are the primary beneficiaries from them, and that resources like wildlife are not excessively taxed. Those who live with the wildlife should be the principal actors in management decisions regarding its use;

•that, provided people have proprietorship of wildlife, wildlife should be marketed to add as much value as possible (thereby increasing the incentives to 'produce' it). The landholder should be free to decide what is the best combination of uses, with these including protein production, safari hunting, tourism, eco-tourism and others. To date the greatest economic return has been provided by high quality hunting of a small, sustainable portion (usually 2%) of the wildlife resource.

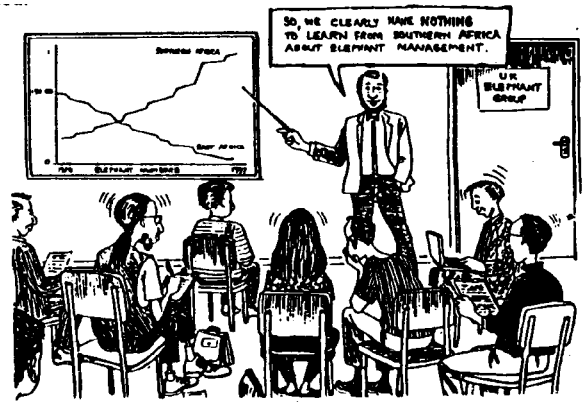
In short, these principle aim to get the economic system right such that wildlife conservation is regulated and encouraged by market forces, with government maintaining a backstopping role in the rare case of abuse.

Proof in the pudding

We are already seeing the impact of this grass-roots democracy in the increasing voice of African communities and wildlife producers in national and international fora.

The impact of community-based wildlife conservation on the livelihoods of rural people is also well documented throughout southern Africa.

In specific relation to elephant and wildlife conservation, this new approach is showing very significant conservation benefits. The attached cartoon illustrates the relative merits of the new and old paradigms for wildlife conservation, and the reluctance of some rich, western urban groups to see this reality (none so blind as those who do not want to see). Kenya, having banned hunting in 1976 represents the situation where the new African-generated approach to conservation has not been adopted (note that Kenya, as stated frequently by Dr. David Western Director of Kenya Wildlife Service, recognizes the need to adopt this approach but was painted into the preservationist corner by its past policies which included the burning of ivory and is struggling to climb out of it). Recent surveys show that the wildlife populations in Kenya have declined by as much as 40-60% since this non-use policy was adopted.



In contrast, in South Africa some 8 million hectares of ranch and farm-land have been allocated to wildlife. The contribution of this to wildlife illustrated by noting that this compares to 2 million hectares of national parks and protected areas. Similarly, in Zimbabwe more wildlife is now protected on ranch and farm-land than in national parks because of the adoption of pragmatic wildlife policies. The same is increasingly true throughout southern Africa.

The challenge of the last decade has been to develop policies and practices whereby small-scale black subsistence farmers living in remote rural communities have come to own, manage and benefit their wildlife.

That southern Africa has been successful in taking up this challenge is illustrated by the widespread involvement of communities throughout the region in community-based wildlife programs: LIFE in Namibia, NRMP in Botswana, CAMPFIRE in Zimbabwe, ADMADE in Zambia, all of which are partly supported by USAID.

That these programs are at the cutting-edge of the global search for solutions to the problems of poverty, democracy and conservation in developing countries, is reflected in the excitement and endorsement of these programs by:

•the major mainstream conservation agencies (examples are attached from WWF, IUCN AWF, WCS, NWF, IIED, and the renowned conservationist Paul Erlich are attached in support);

•the support of these programs by the major development agencies and bilateral donors (USAID, EU, Norway, Netherlands, UK, Germany, to name a few);

•the positive editorial support in major mainstream publications (Economist, Wall Street Journal, Newsweek, US News and World Report and others); and

•the prominence of programs like CAMPFIRE in recent academic and development literature (e.g. "Living with Wildlife" and "Decentralisation and Biodiversity Conservation" by the World Bank, "Whose Eden" by IIED, "Natural Connections" by Island Press).

These programs are new and evolving, and their management philosophy is based on adaptive management, and therefore on on-going evaluation and transparency. This is reflected in the amount of self-criticism and self-evaluation generated by these programs, and it why these programs have allocated so many resources and, particularly time, to disseminating information and supporting visitors from interested parties including academics, other communities and even visitors patently opposed to the sustainable use approach.

"Animal rights activists want to kill the best hope yet for African wildlife" UTNE Reader, Dec 1996

"For many, conservation seems a simple matter: stop killing wildlife. Those on the ground are coming to the opposite conclusion," The Economist, April 26, 1996

While transparency is essential and criticism is welcome, an unfortunate consequence is that opponents of sustainable use often misuse and misquote this information. A timely and pertinent example are the recent attempts by HSUS to discredit CAMPFIRE. As noted in a response to one such article by HSUS (which is attached as an example) "it is hard to avoid the conclusion that this [misrepresentation] is no accident, but a deliberate attempt at distortion to validate their ethics, with scant regard for the truth or human welfare". Similarly Dr. Barry Dalal-Clayton of IIED notes: "excerpts have been lifted ... and presented together in such a way as to suggest, unfairly, a pattern of unsustainability in CAMPFIRE activities. They also imply, quite mistakenly, that IIED believes this to be the case. These quotes have been taken out of context ..." To press home the point, Paul Ehrlich notes: "I have long been a supporter of various animal rights initiatives ....[but] even the most casual analysis tells one that, in the case of the elephants, the Campfire Program is on the right side and the Humane Society is on the wrong side ... I'm sorry you are having your fine efforts at rural development being attached by a fringe group". While criticism is welcome, indeed encouraged, such deliberate misrepresentation and irresponsible claims are not useful and can absorb and waste a lot of resources that could otherwise work directly to benefit wildlife and rural communities.

Cutting edge and regional unit

There is little doubt that the southern African community-based wildlife programs are at the cutting edge of contemporary conservation. They have been greatly assisted by the support and partnership with America, who have has the foresight to recognize and support this innovative approach, providing significant funding through USAID and small amounts of strategic funding through the AECA. CAMPFIRE, and this support, is in the limelight because it is leading the way.

The value of CBCD programs to a sustainable ecological future has won global recognition and is, in part, supported financially by assistance from the US government. The US, through the USAID, provides financial assistance to the following

countries for their CBCD programs in the SADC region alone, Botswana, Malawi, Namibia, Zimbabwe and Zambia, as well as countries such as Cameroon, Kenya and Uganda elsewhere in Africa. This American support for these programs should come as no surprise, particularly given the emerging consensus in support of sustainable development from across the political spectrum. The former US Secretary of State, James Baker observed that:

"Sustainable development, to put it simply, is a way to fulfill the requirements of the present without compromising the future. When policies of sustainable development are followed, our economic and our environmental objectives are both achieved. In fact, America's entire approach to bilateral and multilateral assistance is based on the concept of sustainable development."

Outputs from sustainable use and community-based conservation

To illustrate how successful the sustainable conservation approach to wildlife management can be, I would like to provide information using the example of CAMPFIRE in Zimbabwe, but recognizing that this is but one example of a regional approach.

It is unfornmate that the American public is being misinformed that CAMPFIRE is about killing elephants. It is much broader than this. It involves democracy, human rights and improved governance. It involves human well-being. It involves fundamental economic restructuring and improved land use. And it results in broad-scale conservation of elephants, other wildlife and their habitats.

Biological conservation

When viewed in the context of elephant conservation, the results of CAMPFIRE are impressive. Whilst it is well-known that the number of elephants has declined in some African nations following more "traditional" conservation measures, for example, Kenya, where the elephant population plummeted from 35,000 to 26,000 in the 1980's. Zimbabwe's elephant population has increased under policies that include utilization, soaring from approximately 48,000 in the early 1980's to 67,000 today and is currently increasing at a rate of 2-3,000 per year. Likewise Botswana, which has a similar approach to wildlife management, has an elephant population of approximately 80,000, again a substantial increase in the elephant population. Namibia has sustained a significant increase as well.

Interestingly, sound utilization has reduced the number of elephants killed. In the early 1980s, some 300 elephants were killed in communal areas every year largely because they were raiding crops. With the introduction of CAMPFIRE, offtakes were considerably reduced, with about 100 elephants sold to trophy hunters and only 30 killed for crop raiding. They had become so valuable that people began to tolerate and manage them.

We have already noted the massive increase in land allocated for wildlife throughout southern Africa as a result of sound management policies.

Monitoring

Fringe groups sometimes attack CAMPFIRE on the basis that it has failed to conserve wildlife. This is simply not true. Indeed, with funding from AESA through SCI, CAMPFIRE has implemented one of the best quota management programs in existence. Every animal shot is measured and entered into a central data-base, with data confirming that trophy quality is being maintained. Communities are trained to analyze and collect date, and to set and manage quotas. Aerial surveys, ground counts and other such measures are undertaken. The end result is that communities are fully involved in managing their wildlife, and their maturity and knowledge is indicated by the fact that, where it is sensible, they are reducing quotas although this reduces their income. That is sound, sustainable management.

Rural development

As the elephant herd is sustained, local communities prosper. In 1994, the program generated over US$2 million in Zimbabwe, for the country's economic and ecological development—an enormous amount for a country where the annual average annual wages often fall below $150 per year. These funds significantly contributed to improving the livelihoods of some half a million people. With further USAID funding the program is set to expand further and by the year 1999 should be benefiting approximately 2 million people. These funds provide food in years of crop failure, support development initiatives and income generating projects such as schools, clinics, small shops, and grinding mills; and promote additional conservation efforts, such as the employment of local game guards and the installation of wildlife water sources.

Governance and democracy

One of the most remarkable facts about CAMPFIRE is that it has become an ideological movement whereby bureaucrats have been devolving financial to communities below them—and for bureaucrats to give up powers to such an extent is remarkable. This fiscal devolution is illustrated graphically by financial data which shows that in ten of the twelve primary wildlife districts, fully 74% of income reached grassroots communities, with the remainder being used for central wildlife management and administration. There is probably no other development project anywhere that has achieved such progress. Nothing is perfect, and two districts have been excluded from this analysis because they were reluctant to devolve authority and finances. This reflects the temptation for local government to 'tax' its constituency, a temptation that is especially strong in Zimbabwe as local government is given more and more functions with less and less government grants to undertake them. The fact that fiscal devolution occurred at all in these circumstances is truly remarkable, and reflects the strength of the CAMPFIRE approach and the commitment of people to it.

Allocation of wildlife revenues in ten CAMPFIRE districts showing remarkable rate of fiscal devolution

	1990	1991	1992	1993
Money retained centrally for general district administration	68.2%	36.0%	31.9%	13.8%
Money used for central wildlife management	3.0%	13.9%	9.6%	18.3%
Money devolved to 'producer communities'	47.0%	62%	58%	74%

Allegations of corruption

Because of grass-roots democracy and transparency CAMPFIRE is particularly difficult to corrupt. Nonetheless the program has been subject to a smear campaign based on alleged (not proven) corruption involving $1,600 in Nyaminyami district. The desperation of the smearers is reflected in the fact that the money involved had nothing to do with USAID, nothing to do with CAMPFIRE money, with the only connection being that a district council involved in CAMPFIRE has allegedly misappropriated money from a completely unrelated source.

In five years of looking at CAMPFIRE accounts in 12 districts in my role as CAMPFIRE Coordinator for the Zimbabwe government, I found no blatant case of corruption. There were a few instances where councils desperate for money for projects like clinics used wildlife money for non-wildlife causes instead of allocating these to producer communities. It was pointed out to them that this ran counter to the CAMPFIRE principles, and this was usually sufficient to rectify the situation. There were also a few cases at lower levels where community officials misused money. Here the transparency of financial management process resulted in people being turned in by their own communities before major losses occurred. I viewed this as a sign of the success of the transparency and checks-and-balances built into the program, rather than failure.

I hope that these few examples convey some of the excitement and progress associated with community-based natural resource management in southern Africa. There is a lot of literature available for anyone who wished to pursue any of the points made above, and we would naturally be willing to talk to anyone about this new approach.

Conclusions

In conclusion, and returning specifically to the AECA, I would like to reiterate my thanks for the funding provided under this Act.

I point out that there are major transaction costs in moving from the centralized to decentralized management that I have discussed at some length, and believe that the AECA now faces a strategic decision. Can the AECA allocate sufficient funds to promote this transition given the high transaction costs as illustrated by the size of the USAID budgets that support this in several southern African countries?

However, even small mounts of money can be important in removing bottlenecks. Even more important, is the fact that such expenditure signifies an endorsement of a sustainable use approach, and this might be the greatest contribution that the AECA can make to the conservation of African elephants and wildlife.

I would therefore urge the AECA to recognize that the primary threats to elephants lie in competition for land, that their future lies in making elephant management economically sound, and that the AECA can greatly facilitate elephant conservation by endorsing this approach.

Support in the form of small amounts of strategic funding for (1) law enforcement and (2) CBNRM programs will still be a major positive contribution. Funding the later, in particular, is critical for long term sustainability in that it endorse a pragmatic, African, utilization approach, and would be especially valuable if complemented by an effort to explain the rationale for sustainable community-based use to the American public who are already a major market for elephants.

Allocating funds for frivolous and illogical projects like elephant contraception would be wasteful and would send the wrong message. After all, how can one justify birth control for a so-called endangered/threatened species? And how can one justify reducing productivity in a continent so starved of resources?

Trade, not aid

CBCD programs depend upon obtaining economic return from wild resources, which in turn requires open and functional markets for these products. In the final analysis, trade, both domestic and international will determine the future of the programs. However, presently there is a misconception that trade restrictions, such as the ban on trade in ivory and other elephant products, are effective instruments that assist in advancing sustainable development and protecting wildlife.

It has been argued by some that the existence of trade restrictions has been resulted in a significant decline in poaching and the stabilization of the elephant population. Our experience is that the stabilization of elephant herds and the decline in poaching has occurred in nations with sustainable conservation programs.

Dr. Hugo Jachmann has recently published data showing that investing in law enforcement has reduced the number of elephants killed in the Luangwa Valley in Zambia from 10 each day to less than 40 each year. This is the best data set on law enforcement in existence. Interestingly, this data shows that the amount of poaching is directly and inversely related to the amount of money spent on law enforcement, especially on performance-related bonuses. It also shows that external factors like the ivory ban has no significant value as a predictive variable, supporting the conclusion of a major study done by IUCN/SSC that poaching is reduced primarily by spending money on law-enforcement "Four years after the CITES ban: illegal killing of elephants, ivory trade and stockpiles".

We would urge the AESA to recognize this and to support trade if (and only if) products arise from a process that is both ecologically and socio-economically sustainable and is carefully regulated, thereby harnessing market forces to promote elephant conservation.

"Animal lovers hail the ivory ban—but many African conservationists hate it and say it hurts wildlife." US News and World Report, Nov 25 1996

While on this point, we note that CAMPFIRE has been highly successful but that the ban in trade in elephant products has probably halved the income from wildlife. How much more successful would such programs have been at conserving elephants and uplifting rural people if they had been twice as profitable?

I would also like to point out the massive opportunity costs imposed on southern Africa by this ban, and the fact that they cannot reap the rewards of their successful elephant management programs. In general, we have been extremely disappointed that those who clamored for the ivory ban have done so little to compensate for the massive losses imposed, or to assist in putting in place measures to ensure the sustainable long-term management of elephants given the realities of the competition for land. We are therefore doubly grateful for the support provided to sustainable wildlife management provided to the southern African region by the USA, with significant funding provided by USAID and small but strategic funding provided through the AECA.

The sustainability of local communities management programs will depend on adequate funding as well as the tolerance of domestic and international trade regimes for carefully controlled and sustainable trade in wildlife resources. In this regard, we encourage further U.S. conservation efforts to proceed in accordance with the framework of CITES.

As the U.S. considers the Reauthorization of the Africa Elephant Conservation Act, we urge the policy makers to take into account the effectiveness of CBCD programs in wildlife conservation as they evaluate programs for assistance under the Act. Since sport hunting is an important source of revenue for the programs, we request your committee to consider the exemption of sport hunting trophies from import restrictions in line with the committee's original intentions.

Mr. Chairman, we thank you and members of this Subcommittee for this opportunity to testify on the African Elephant Conservation Act and to express our support for the Reauthorization Act of 1997.

TESTIMONY OF BARBARA JEANNE POLO, POLITICAL DIRECTOR, AMERICAN OCEANS CAMPAIGN

(Testimony prepared with the assistance of Tanya Dobrzynski, Living Resources Specialist)

Good morning. My name is Barbara Jeanne Polo and I am the Political Director of American Oceans Campaign (AOC), a national environmental organization dedicated to the protection and restoration of marine ecosystems. On behalf of AOC, I would like to thank Congressmen Saxton and Abercrombie, the Subcommittee on Fisheries Conservation, Wildlife and Oceans, and cosponsors of the "Coral Reef Protection Resolution of 1997" for holding this hearing on coral reef restoration and protection.

This hearing is timely because 1997 has been declared the International Year of the Reef, and also because coral reefs around the world are suffering from overwhelming destruction and calamitous declines. They need our attention and support.

Coral reefs make up a tiny percentage of the earth. Their total land area is about equivalent to the size of Texas. They thrive in clean, clear, warm waters of the tropical and subtropical zones. Approximately 100 countries around the world have coral reefs within their territorial waters. The United States is one of these fortunate nations. In the U.S. these exotic treasures can be found in the waters of Florida, Hawaii, the Gulf of Mexico. They are also prominent features of the U.S. affiliated territories and islands such as Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Northern Marianas.

Although many Americans cannot claim to have seen a coral reef first hand, we have surely all seen these magically colorful and labyrinthine structures displayed on the pages of National Geographic or on the screens of our televisions. Their colors are numerous and vibrant; their shapes reflect the diversity of life on our entire planet, mirroring flowers, elk horns, sponges and even human brains. Coral reefs are perhaps the most glorious of marine ecosystems. They have inspired artists, scientists, environmentalists, politicians, and outdoor recreationalists alike to explore their mysterious qualities.

Beauty is only the most apparent asset of the coral reef. Composed of tiny animal and plant-like elements which have taken thousands of years to produce the huge calcium carbonate structures we recognize as reefs today, coral reef ecosystems are the most productive and diverse ecosystems of the sea. Although the total number of reef-based species is still unknown, more than 3,000 different species can be found on a single reef in the Pacific and more than 1,000 on a single reef in the Caribbean. Overall, reefs provide the habitat for nearly 25 percent of all marine life. They provide nursery and spawning grounds for nearly 15 percent of the world's fish catch, vital habitat for threatened and endangered species, such as sea turtles and manatees, and they protect coastal animals and plants from the turbulence of tides and storms.

As the home of more than one third of the world's marine fish species, coral reefs provide an abundant protein source used to feed much of the world's population. On some Pacific atolls, reef-based fish and other species account for 50 percent of the daily protein intake by locals. In the Caribbean, approximately 180 of the 350 known species of reef-related fish are commercially marketed. So valuable are these ecosystems as "fish-producers," they have been aptly touted by Rodney Salm of the World Conservation Union as "no-cost, self-perpetuating fish farms which produce high-quality protein from essentially empty sea water."

Because of their ability to draw beach goers, divers, sightseers and sport fishers, coral reefs directly and indirectly generate billions of dollars in tourist revenue. In fact, one of our premiere reefs, the Florida Keys Reef tract, is the most-visited coral reef in the world, catering to an average of four million tourists per year and contributing billions in tourist dollars to the State's economy. In Hawaii the income from coral-related diving alone is $20 million per year.

In addition to their intrinsic beauty and vital ecological and economic functions, coral reefs may hold the key to finding the cures for cancer, AIDS, arthritis and other mentally and physically debilitating conditions. It has already been discovered that common reef-dwellers such as sea fans and sea anemones contain antimicrobial, anti-carcinogenic, and cardio-active properties. In addition, certain species of reef coral, including Porites and Gorgonian corals, have been used to construct bone grafts for patients requiring maxillofacial and cranial surgery.

The values of coral reefs, therefore, are abundant. Unfortunately, stress caused by a host of human induced changes to their environment is taking a dramatic toll on coral reefs in the U.S. and around the world. Scientists estimate that of the existing reefs in the world, 10 percent have already suffered irreversible damage and an-

other 30 percent are likely to be lost within the next decade if serious actions are not taken to reverse the devastation wrought by human activities.

Among the most devastating of human activities are marine- and land-based water pollution, overfishing, destructive fishing practices, coastal development, and loss of habitat. Coral reefs require clean, clear, water that is low in nutrients. However, sediment and fertilizer runoff from coastal development and agricultural production are polluting coral reef waters, blocking the sun from the reef's plant-like components and encouraging overgrowth of nutrient-loving algae, which can smother reefs. Over-fishing of reef fish, sea urchins and other "grazers" which commonly keep algal growth in check is also leading to algal overgrowth on coral reefs. Loss of mangroves and other fringing wetlands, which filter pollutants from aquatic systems, exacerbates the problems of sediment, nutrient and toxic pollution runoff.

Indeed, these threats sound even more grim when one considers that coastal populations are expected to continue increasing and exact even greater tolls on coral reef ecosystems. Currently more than 60 percent of the world's population—3.8 billion people—lives within 100 miles of the coast. This figure is expected to rise to 75 percent within three decades (Don Hinrichsen, *The Amicus Journal,* "Pushing the Limits...," 1996). These figures closely reflect current and forecasted coastal population estimates of the United States. Currently, 55 percent of all U.S. residents live and work in 772 coastal counties contiguous to the coasts. This figure is expected to rise to 75 percent by the year 2025 (Hinrichsen 1996).

The scientific community has been raising concerns over the loss of coral reefs within international forums for years. In 1994, following the recommendations of Agenda 21 and other global efforts, the International Coral Reef Initiative (ICRI) was proposed. This effort recognized that reefs around the world are subject to similar threats and hoped to better coordinate independent efforts to research, monitor, manage and protect coral reefs. This effort started among eight countries and has grown to include more than seventy countries worldwide. Through a series of workshops, the development of a "Call to Action", and a *State of the Reefs Report,* the ICRI effort has chosen to focus on four major areas. These areas are coastal management, capacity building, research and monitoring, and review of activities.

As these areas of concern received greater attention, many problems were identified. Those that were identified as the most critical areas for concern and international coordination include: a lack of coordinated coastal management to protect reefs; funding for research and monitoring coral reef ecosystems; building networks for getting critical information to local, state and federal governments, to coral reef resource users (like fishers) and to tourists and the general public; and finally, analysis and evaluation of the programs that do exist.

H. Con. Res. 8 supports the goals of ICRI and encourages improvements in many reef-related U.S. activities. It resolves that Congress will promote stewardship, encourage research and education, and improve coordination of reef-related activities. American Oceans Campaign strongly supports all of these goals and hopes that through Congressional commitment, the means to accomplish these ends will be identified.

The environmental community would like to recommend a few minor corrections to H. Con. Res. 8, prior to passage. Please include the Northern Marianas in the list of U.S. territories where reefs are of vital economic importance. Please make a distinction between underwater National Parks which feature coral reefs such as the National Park System's Buck Island Reef, administered by the Department of Interior and National Marine Sanctuaries such as Florida Keys National Marine Sanctuary, administered by NOAA. Each provide important but different contributions to the protection of U. S. coral reefs. Add a final point (4) demanding and funding better implementation and enforcement of provisions in existing statutes, such as the Clean Water Act, the Magnusen-Stevens Sustainable Fisheries Act, and the Coastal Zone Management Act, that will protect coral reef ecosystems.

There are many legislative avenues available to Congress to help protect, educate, research and restore coral reef ecosystems. Since the greatest threats to reefs are the result of human action, regulation of those actions can relieve the threats. Water pollution, destructive fishing practices, poorly planned and managed coastal development, inappropriate trade practices, and lack of protection for threatened species can be addressed through new legislation or enforcement of current law. We should be world leaders in this effort and H. Con Res. 8 demonstrates a commitment at the highest legislative levels to make coral reef health a priority in this country. Chairman Saxton and his cosponsors are providing the groundwork for the Federal leadership we need to develop enforceable, secure protection for coral reefs.

Reviewing the causes of and solutions to water quality degradation in the Florida Keys can illustrate ways that legislation will help to protect coral reefs. The Florida Keys are experiencing a precipitous decline in water quality. Many human activities

and decisions have combined to cause this degradation. There is a massive influx of agricultural run-off from Florida Bay and the Everglades due to management decisions to restore fresh water flows without an accompanying effort to clean up the water. Coastal development continues in the fragile southern Florida and Keys ecosystems loosening soils that cause millions of pounds of sediments to flow into the ocean and smother the reefs. This development is also responsible for destroying the fringing mangrove forests that act as natural filters for pollution and sediments before water reaches the ocean. There are thousands of sources of inadequately treated sewage pouring onto the reef from cesspits, septic tanks, injection wells, and inadequate treatment plants. These are necessary to "treat" the sewage from 87,000 year-round residents and more than four million tourists per year. The largest fleet of charter boats serves the Florida Keys since it is the world's largest recreational diving destination. These boats dump millions of gallons of raw sewage into the ocean around the reefs.

All of these human activities that have caused massive degradation of Florida keys water quality can be controlled through legislation, many by merely enforcing existing provisions of the Clean Water Act. Marine water quality standards must be developed that take into account the biological needs of the marine life in coastal waters. Point and non-point sources of pollution must be required to stop polluting beyond these standards. Rare and unique ecosystems, such as coral reefs, should be designated as Outstanding Natural Resource Waters and afforded an even higher level of protection. Sources of polluted run-off such as cesspits, septic tanks and agricultural fields must comply with enforceable pollution prevention programs in the coastal states. Sewage from boats must be stopped. No discharge zones for boats must be designated and enforced. Mangroves are free, natural filters of pollution and should be protected. Protecting the wetlands, mangrove forests, and sea grasses that provide the transition from land to sea is the least costly way we can protect water quality. Treatment is far more expensive and less effective than prevention.

Through oversight, Congress has the ability to emphasize under-enforced provisions of the Clean Water Act that would address standard setting, storm water discharges, boat discharges, protection of wetlands and mangroves, and ocean discharges of sewage to waters that support coral reefs. Through new legislation Congress could strengthen coral reef protection by improving polluted run-off control programs and emphasizing the special nature of reefs. Finally, Congress can give EPA and the states enough money to accomplish their Clean Water Act goals, including enough money to build sewage treatment plants that can control nutrients.

As part of our "International Year of the Coral Reef" agenda, American Oceans Campaign, in conjunction with the Clean Water Network, is working on a report that will describe in detail how the Clean Water Act can be instrumental in protecting and restoring U.S. coral reefs. Many important provisions of the Act have never been implemented and others are not enforced. Better implementation and enforcement of the Act, along with a few minor strengthening amendments will go far to restore water quality necessary for healthy coral reefs. Our report will be completed in June. We will provide it to Congress at that time.

The Coastal Zone Management Act also has provisions for addressing polluted run-off in the coastal zone and for managing coastal development to minimize environmental damage. The polluted run-off sections of this Act have always been funded well below authorized levels. States have been asked to develop plans to ensure that they have enforceable measures that would stop polluted run-off in their coastal watersheds. This is a necessary and laudable goal, however, there are no models for this and the Federal government has provided essentially no money to the states to help them comply with the mandate. It is no wonder they have yet to get this critical job done. Congress could appropriate enough money to coastal states to enable them to develop their coastal polluted run-off programs and target additional funds to implement the programs.

Marine species are under-represented in the lists of threatened and endangered species under the Endangered Species Act. This is largely due to the fact that it is difficult to monitor species in the ocean. Coral reef ecosystems play a critical role in the life cycles of 25% of all marine life. Their component species need to be identified, studied, monitored and protected when threatened. We need to ensure that barriers to listing populations of marine invertebrates under the Endangered Species Act are removed.

Reefs are natural areas that generate fish. Many commercial fish species live and breed in coral reef ecosystems. Therefore, lots of fishing takes place on reefs. Many fishing methods are taking a toll on reefs that will eventually destroy the reef and the fisheries. Highly destructive fishing methods, including use of cyanide, dynamite or surfactants to stun fish are common place. Cyanide and surfactants are poisons. They kill or stun the desired catch as well as the rest of the life on the reef. There

is also concern that they would affect the eventual consumer of the fish. These techniques are often employed to capture fish for the tropical fish aquaria trade. U.S. hobbyists are the largest consumers of reef fish for aquariums and are usually unaware that their hobby is killing the reefs they so admire. Outreach to the public on the effects of these practices could help to engender a market-based partial solution to inappropriate fishing methods.

Dynamite blasts stun and kill fish in the vicinity of the reef so they are more easily collected, but also destroy the infrastructure of the reef itself. These methods may be successful for an individual fisher in the short run, but they destroy the future of the fishery for us all. Dynamite fishing also destroys the ability of coral reefs to protect coastal areas from fierce coastal storms. Once a reef has been breached by dynamite, ocean currents, previously held at bay, can sweep into fragile shorelines and erode them even in calm seas.

Other fishing practices that are destructive to reefs but less obvious are those that target particular species that are necessary to carry out a "job" critical to the well being of reefs. Grouper and sea urchins live in coral reefs. Both are prized commercial fisheries. Both eat algae. When grouper and sea urchins are harvested out of a coral reef, the algae grow out of control. Uncontrolled algae smother the hard coral species by blocking sunlight and depleting available oxygen. Eventually they destroy the productivity of the reef. Under the Magnuson-Stevens Sustainable Fisheries Act, areas such as reefs should be designated as essential fish habitat and made off-limits to this kind of destructive fishing. If certain areas of coral reefs were designated as marine reserves and these species which fill critical niches in the ecosystem were protected, everyone would have healthier fisheries over the long term.

Designation of marine reserves is becoming more and more common around the world, particularly in communities and countries that are very economically dependent on healthy reef fisheries. Marine reserves are very controversial in this country. Through the National Marine Sanctuary Program, a very small marine reserve has been designated, over great opposition, in the Florida Keys Marine Sanctuary Plan. This reserve is small, and likely to be inadequate to do the job of regenerating fisheries in the area. If we use this tiny attempt to judge the success of marine reserves, we are doing a disservice to science. As Regional Fishery Management Councils are revisiting their fishery management plans over the next two years in response to the mandate under the Sustainable Fisheries Act, Congress should encourage them to use marine reserves and essential fish habitat designation to protect the future of our fisheries and our coral reefs.

The Florida Keys National Marine Sanctuary also offers an opportunity to address water pollution since it has a Water Quality Protection Program element. This program, headed by USEPA funds water quality research and monitoring. Through this project water pollution sources can be positively identified. If managed correctly, identification will only be the first step, not the last. Once identified, Congress, the state and local governments must fund corrective measures.

NOAA has taken the lead in the U. S. in carrying out the goals of the International Coral Reef Initiative. They have laudable and lofty goals to promote science for improved management, to foster sustainable coastal development, and to spread information about coral reefs. To accomplish these goals, NOAA needs to coordinate with other Federal, state, local, academic and non-governmental partners. They need to research, monitor and assess U.S. reefs. They need to identify management priorities. They need to find sustainable methods for utilizing reef resources. They need to get information to the most important communities and users. To carry out all of these programs they need money.

In closing, American Oceans Campaign would again like to express our appreciation to the sponsors of Congressional resolutions to protect coral reefs. They have opened the door to ongoing dialog about stronger measures that can be taken by the Federal Government, or on the state and local levels. Attached to this testimony is a letter signed by many national, regional and local groups interested in reef protection, asking for a series of field hearings to explore solutions to existing coral reef threats. We look forward to a continuing search for ways to ensure a long and healthy future for these exquisite natural resources.

Thank you.

* AMERICAN OCEANS CAMPAIGN *

* CENTER FOR MARINE CONSERVATION * CORALATIONS, INC.*

* CORAL FOREST * THE COUSTEAU SOCIETY *

* ENVIRONMENTAL SOLUTIONS INTERNATIONAL *

* FLORIDA INSTITUTE OF OCEANOGRAPHY * GREENPEACE *

* MISIOAE1N INDUSTRIAL DE PUERTO RICO, INC. *

* NATIONAL AQUARIUM IN BALTIMORE * THE NATURE CONSERVANCY

* OCEANWATCH * REEFKEEPER INTERNATIONAL * REEF RELIEF *

* SAVE OUR SEAS * SIERRA CLUB * WORLD WILDLIFE FUND *

The Honorable James Saxton
Subcommittee on Fisheries Conservation, Wildlife and Oceans
United States House of Representatives
Washington, D.C. 20515

March 10, 1997

Dear Chairman Saxton:

We, the undersigned organizations, would like to thank you for the efforts you have made to promote the restoration and protection of coral reef ecosystems through introduction of the "Coral Reef Protection Resolution of 1997," (H. Con. Res. 8). We are also encouraged by the scheduling of the Congressional Hearing on coral reefs to be held by your Subcommittee on March 13. In addition, we feel there is an equally important need to convene hearings at the regional level in order to promote information sharing and enhance the national understanding of how coral reef systems affect and support local communities.

As you know, coral reefs around the world are in a state of crisis that promises to bring these underwater treasures to collapse unless many of the problems they face are addressed. Scientists estimate that 30 percent of the world's reefs could see irreversible declines in the next decade if the problems of overfishing, polluted runoff, and siltation due to non-conservation-minded development are not ameliorated. Continued declines would surely wreak ecological and economic havoc, as coral reefs are home to 25 percent of all marine life and contribute billions of dollars to coastal economies annually.

The coral reefs of the Florida Keys, Hawaii, Puerto Rico, the Virgin Islands, the Northern Marianas, Guam, American Samoa and other U.S. affiliated islands are exhibiting many of the same symptoms of stress and illness due to anthropogenic effects as others around the world. Therefore, we urgently request that the Subcommittee on Fisheries Conservation, Wildlife and Oceans conduct a series of hearings, including field hearings in cooperation with state-level governments, in southern Florida, the Hawaiian islands, and other U.S. affiliated islands in the Caribbean and the Pacific, related to the dangers facing coral reefs. These hearings should cover a wide range of the critical issues threatening coral reef health today, including: land-based pollutants, over fishing, destructive fishing practices (muro ami, cyanide, and dynamite fishing), vessel groundings, sedimentation, loss of fringing wetlands, and coastal development.

We are confident that with 1997 being the International Year of the Reef, the national interest and enthusiasm for coral reefs is piqued. Therefore, now is the time to conduct national discussions relating to the plight of coral reefs nationwide and the means to protect them.

Again, we are encouraged that your Subcommittee has acted so promptly in the 105th Congress to focus national attention on the dangers facing coral reefs. We look forward to hearing from you soon regarding our request.

Warmest Regards,

Tanya Dobrzynski
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Washington, D.C.

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Environmental Solutions International

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Jack Sobel
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Washington, D.C.

TESTIMONY OF RAFE POMERANCE, DEPUTY ASSISTANT SECRETARY OF STATE FOR OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS

Thank you for giving me the opportunity to submit this testimony for the record.

Scientists estimate that more than two-thirds of the earth's coral reefs are threatened or in decline. Damaged or destroyed reefs can be found along the shores of more than 93 countries including the United States and its territories. Over-fishing, destructive fishing practices, land-based sources of marine pollution, and sedimentation linked to deforestation are the primary causes of the decline in coral reefs. Accidental ship grounding or anchor damage can occur even in protected marine sanctuaries like those of the Florida Keys. Global warming due to increased concentra-

tions of greenhouse gases may result in sea level rise and higher ocean temperatures; both of which have the potential to be highly destructive to corals.

Reef destruction is viewed among policy-makers and resource managers as a serious loss of economic potential worldwide. Coral reefs protect coastlines from the ravages of storms and waves. Unchecked coastal erosion can cause serious economic instability along developed coastlines. Coral reefs are recreational and educational commodities and lucrative sources of revenue and jobs for both the fishing and tourism industries. As host to an awe-inspiring biodiversity, reefs are among the most important food reservoirs in the ocean. What is more, coral reefs constitute an untapped source for potentially valuable medicinal and industrial compounds. Scientists are astounded by the unique chemical structures of marine byproducts, and early results have yielded compounds with anti-microbial, anti-inflammatory, and anti-cancer properties.

To combat the serious threats to coral reefs worldwide, the U.S. spearheaded efforts to establish the International Coral Reef Initiative (ICRI) in 1994, and hosted the Global Secretariat until July 1996. ICRI was designed as a partnership of governments, local communities, scientists, conservation groups, resource users, and private interests aimed at protecting, managing and monitoring coral reef resources including associated ecosystems like sea grass beds and mangroves. ICRI has grown rapidly over the past three years from a small group of founding partners to a large consortium in which over 73 countries participate. By design, ICRI project ownership and leadership is intentionally devolved to a regional or national level where local resource users shape policies to achieve action appropriate to their specific circumstances.

Within the U.S., the Departments of State and Interior, NOAA, USAID, NSF, and EPA comprise integral parts of the federal effort to stop the destruction of coral reefs. When the activities of academic institutions, non-governmental organizations and dive, tourism, and travel industry interests are also considered, the result is a productive alliance. It is this broad, multi-tiered, coordinated effort that has made the International Coral Reef Initiative effective. During President Clinton's recent visit to Australia's Great Barrier Reef, he praised the International Coral Reef Initiative as "a shining example of what we can achieve....our effort to save the world's reefs is a model for the work that we can do together in other environmental areas".

Within the 1995 *Call to Action* and *Framework for Action,* ICRI partners endorsed a fourfold strategy to save coral reefs around the world. First, efforts are being devoted to improving our knowledge of the status of coral reef ecosystems and how they operate. It is important to gather information on population and community dynamics and on the physiological processes at work in coral reef ecosystems. Scientists are trying to discover the causes and cures for diseases and other phenomena that are responsible for killing 50-80% of the elkhorn corals off South Florida, 90% of the coral cover in a Venezuelan national park, and widespread coral bleaching events witnessed in the Caribbean and Pacific Basin—to list only a few examples.

One of the key achievements of the ICRI is the establishment of the Global Coral Reef Monitoring Network (GCRMN). The aim of the GCRMN is to document the current status of coral reefs around the world so that thoughtful and informed conservation and sustainable use strategies can be developed.

The second goal of ICRI is to formulate management strategies with conservation and sustainable use objectives. ICRI partners aim to establish reef management policy that protects, manages, monitors, and restores fragile reef ecosystems. International ICRI activities have included a major diplomatic campaign and a series of global and regional workshops which have been convened in the Pacific, Tropical Americas, South and East Asian Seas, East Africa and the Western Indian Ocean to develop action plans for the conservation and sustainable use of coral reefs.

ICRI has been an important catalyst for regional cooperation in the Caribbean to develop a strategy to conserve the queen conch, a reef associated species which has been over-fished. To address this problem, a highly successful conference was held in 1996 and attended by representatives from 18 Caribbean governments who agreed to begin work on a common management strategy for the queen conch and to consult on other regional fishery issues in the future.

As the third part of the ICRI strategy and complimentary to our focus on sustainable management, participants are also working to decrease the threats to reef ecosystems. Initiative partners must expand efforts to reduce the physical changes inflicted on fragile reef communities whether they are due to land-based or marine pollution, ship and anchor impact, alien species, temperature and sea level fluctuation, or destructive fishing practices.

The Department of State hosted a global conference in 1995 which adopted the Global Program of Action (GPA) on the Protection of the Marine Environment from

Land-Based Activities. This initiative reflects ICRI objectives and launches long-term efforts to deal with land-based marine pollution including municipal, industrial and agricultural wastes, sewage and wastewater, heavy metals nutrients and sediments.

The increased use of cyanide to harvest fish for aquarium and restaurant demands is a serious threat to some of the world's most diverse coral reefs. The practice of cyanide fishing began in the Philippines and is rapidly spreading throughout the Pacific Basin. This process kills many of the target fish as well as other non-target fish and corals. The U.S. is working with established international organizations, foreign governments, conservation groups, and representatives from both the aquarium fish and cyanide industries to halt this destructive practice. As a result of U.S. efforts, the cyanide industry is actively working on an improved, non-destructive test which would detect trace amounts of cyanide long after fish capture.

The final objective of ICRI is to successfully educate the general public, industry, and policy makers of the threats to coral reefs. The participants in the International Coral Reef Initiative have been instrumental in the design and endorsement of the 1997 International Year of the Reef. As part of this year-long effort, over thirty countries, academic and government agencies, and NGOs have launched efforts to sponsor workshops, develop national action plans, and strengthen public-private partnerships to address the global degradation of coral reef ecosystems. For example, Colombia has launched its Year of the Reef program with the announcement of the discovery of a new species of black coral. Brazil will focus world attention on the only reefs found in the South Atlantic and their significance due to an abundance of unique life forms. Oman has published a series of articles detailing plans to protect its coral reefs, and the South Pacific Regional Environment Programme has launched its own 1997 Pacific Year of the Coral Reef.

H. Con. Res. 8 and H. Con. Res. 87

There is a limited window of opportunity to reduce the serious threats facing coral reefs. ICRI has made great strides in the past three years, providing a strong and well-accepted framework for future efforts both in protecting our national reef treasures and in fostering similar action around the world. The Department of State supports two resolutions which foster the sustainable use of coral reef ecosystems. H. Con. Res. 8, expressing the sense of Congress with respect to the significance of maintaining the health and stability of coral reef ecosystems, was introduced by Mr. Saxton (R-NJ) and recognizes the importance of protecting this vital resource. On March 11, Mr. Miller (D-CA) introduced H. Con. Res. 87, expressing the sense of the House that the United States and the United Nations should condemn coral reef fisheries that are harmful to coral reef ecosystems and promote the development of sustainable coral reef fishing practices worldwide. This resolution encourages continued international cooperation and promotes ICRI efforts to save coral reefs.

Again, Mr. Chairman, thank you for letting me submit testimony for the record on this important environmental issue.

STATEMENT OF JEAN-MICHEL COUSTEAU

"The Importance of Protecting the Health and Vitality of Coral Reefs"

I would like to applaud the commitment the United States has made to protecting coral reefs through helping create the International Coral Reef Initiative, creating National Marine Sanctuaries where coral reefs exist, supporting the International Year of the Coral Reef and now this Resolution.

I have had the good fortune of traveling extensively and witnessing first hand many coral reefs around the world. I have seen the vital connections between the health of coral reefs and the quality of peoples lives where loss of reef resources has caused hardship for local communities. I have also observed how activities such as cutting forests, agricultural runoff, pollution, overfishing, and destructive fishing can affect the vitality of coral reefs, again with negative impact on people. Likewise, coral reefs themselves are interconnected on wide geographic scales through fish migrations, the dispersal and recruitment of fish and shellfish larvae, and as people travel to exploit or enjoy the reef's resources. Although the United States may have relatively few coral reefs within its territorial boundaries, it is appropriate that attention be given to coral reefs worldwide because they are all connected in one way or another.

I would like to address a couple of issues of particular interest to me—management and education. Papua New Guinea is one of the few countries that has a constitution which specifically addresses the protection of natural resources for future

generations. Many other countries in Asia, the South Pacific and Caribbean, though, have Ministries of the Environment which are dedicated to the sustainable management of natural resources, including coral reefs. In spite of noble proclamations about protecting coral reefs, in every country I have visited I can site examples of reefs severely overexploited or stressed from human mismanagement.

Extensive deforestation in Indonesia has released nutrients and sediments which stress reefs. In Papua New Guinea I have seen reefs reduced to rubble from dynamite fishing and local people missing limbs from premature explosions. In Haiti, a 10 foot high wall of conch shells called the pink cliffs, extends along a coastline for almost a mile. Fishermen now lament the collapse of their fishery and believe the conch population has moved, denying that overharvest is the cause.

Although there doesn't seem to be scientific consensus on direct cause and effect to explain the decline in Florida's coral reefs, human activity both in the sea and on land is certainly involved. The most devastated reefs I have ever witnessed surround the tiny country of Nauru which has had one of the highest per capita income in the world. Mining and resultant destruction of over 80% of the landscape provided money, but has eliminated the natural heritage for future generations. Young people with whom I have spoken, and who have no need or incentive to work, told me their greatest wish would be to be able to dive and enjoy healthy and productive coral reefs.

In my opinion the common denominator in these examples of mismanagement is that national policies are ineffective unless people are educated about reefs. People need to appreciate the value of coral reefs to humanity, how a coral reef functions, why reefs are vulnerable to human impact and how they can be managed sustainably under the reality of local conditions. Thus, education is absolutely critical in helping protect coral reefs—education at the international and national level, education at the level of village children and everything in between.

As you may know, education has been my primary activity during my professional career. The focus was originally film, however my team and I are now expanding our activities to a variety of other media and strategies. Children should have a good understanding of coral reefs because they will inherit, and have the responsibility to manage what we leave them. To address this need, we have recently produced a CD-ROM entitled *Cities Under the Sea: Coral Reefs,* which, through the power of the computer, offers young people the opportunity to learn and explore at their own pace. At the other extreme, we are implementing educational programs in Fiji for village children to give them an awareness of coral reefs.

Among the most frequent users of coral reefs are sport divers. We believe they should be outspoken proponents for the sustainable management of reefs, well-educated about reef ecology, and actively involved in reef monitoring. To this end, we have created our "Ambassadors of the Environment" program. This is an educational program which prepares dive masters and instructors to educate sport divers and motivate them to get involved in responsible stewardship. In addition, we are working with the Global Coral Reef Monitoring Network to use divers as "watch dogs" of the reef, alerting the scientific and management communities of possible changes and threats.

Ecotourism is a term commonly applied to a host of activities, many of which are not particularly environmentally-sensitive. I am presently involved in a resort in Fiji and structuring it so that it will serve as a model for responsible development elsewhere. Since such resorts and dive operations commonly result in diver impact on corals, fish and shellfish depletion, sewage impact on reefs and coastal disruption, we believe there needs to be an exploration of alternatives which are more sustainable. At this resort, we are demonstrating that there is another way by attempting to practice what we have preached for so many years.

We are implementing constructed wetlands to treat waste and enable us to use it as a resource for fertilizing the landscape. Of course, reclaiming these nutrients prevents them from polluting the reef as well. This treated resource also enables us to create edible landscaping, where much of our food can be organically grown on site. We have no air conditioning, rather, high-thatched roofs, louvered windows and the shade of abundant trees provide all the cooling needed for comfort. The use of solar water heating, as well as water and energy conservation, keep expenses down and protect the environment. Integrated pest management reduces the use of pesticides. None of the fish served in the restaurant come from reefs. Guests are involved in reef monitoring and mangrove restoration programs and we are working with the local communities on a number of programs, from recycling to establishing marine reserves. We have implemented collaborative projects with the Fijian Departments of Energy, Fisheries and Education as well as the University of the South Pacific.

We see this experiment in practical ecology as the best way to obtain convincing evidence that humanity and nature can co-exist. Our data is now proving that economic success and environmental responsibility are feasible. It is an educational experience for everyone involved: the guests, local people, our collaborators and certainly, ourselves.

We believe every coastal development or activity which impacts or depends on coral reefs should strive to protect the very resource which attracts tourists, provides resources or offers spiritual and cultural enrichment for local people. One of the reasons this is not happening is that people are not informed of the importance of reefs, the connections of reefs to themselves and options for sustainable management.

Our programs in education and sustainable management could be replicated elsewhere and I would be happy to share our experiences with others who have similar objectives.

In summary, I believe we have to carefully manage our coral reef resources in the United States and throughout the world. As the country with the most-traveled population, we have an obligation to educate our citizens to their responsibilities in our coastal waters and their responsibilities as they engage in commerce and recreation in the coastal waters of other countries. With education and management we can protect the vital coral reef resources for future generations.

I am pleased that H. Con. Res. 8 addresses many of the important issues facing coral reefs and particularly support the Resolution's attention to better coordination among the many parties involved in coral reef research, use and management. Our experience in Fiji has shown that this somewhat laborious process is the only way consensus regarding long-term protection can take place.

STATEMENT OF DAVID C. MURCHISON, PRESIDENT, SOUTHERN AFRICA WILDLIFE TRUST

Thank you, Mr. Chairman, for this opportunity to appear before the Subcommittee in connection with its consideration of H.R. 39, the African Elephant Conservation Reauthorization Act of 1997.

The Southern Africa Wildlife Trust supports this measure, except that it would favor an increase in the amount of funds authorized to be appropriated to a minimum of $2 million per year until 2002.

The Southern Africa Wildlife Trust is a foundation organized under Section 501(c)3 of the Internal Revenue Code to carry out wildlife conservation projects in the southern Africa region. In the period since adoption of the 1988 statute, projects to protect and conserve the African elephant have received our priority attention. One such project is a grant under the 1988 Act designed to reduce commercial poaching of the elephant in Botswana, Tanzania, Zambia and Zimbabwe. The amount of grant funds we are authorized to receive for this project from the African Elephant Conservation Fund is approximately $64,000. These grant funds are augmented by contributions received from the private sector, principally the Philadelphia Safari and Conservation Club, the Dallas Safari Club, the Houston Safari Club and the African Safari Club of Washington. In addition, services in kind are provided by the Trust's officers and directors without compensation.

The project consists of a program of Awards for Meritorious Service to Wildlife Conservation presented to eligible scouts and rangers in the wildlife departments of Botswana, Tanzania, Zambia and Zimbabwe. Each award includes a laminated certificate of commendation, a medal to be worn on the recipient's uniform, a pair of high quality binoculars for use on future missions, and an honararium in foreign currency equivalent to U.S. $100.00. To qualify for the award, a scout or ranger must have participated in a hostile engagement with armed commercial poachers; he must have exhibited personal bravery in the course of the encounter; and the anti-poaching operation must have been a successful one, with the poachers being captured, killed or put to flight. The names of personnel receiving the award are then inscribed on a bronze Roll of Honor plaque displayed at the headquarters offices of the wildlife departments.

Since its adoption, this awards program has enjoyed an extraordinary level of public acceptance in the southern Africa region. It has received the strong endorsement of the governments of Botswana, Tanzania, Zambia and Zimbabwe, as well as our own government, and the consensus continues to be that it has greatly improved the morale of anti-poaching personnel and the quality of enforcement operations. Our monitoring in the field confirms that the incidence of poaching has been reduced since enactment of the 1988 Act, and we are satisfied that an important con-

tributing factor has been the increased determination and dedication of anti-poaching personnel in these areas of high elephant population.

Of course, this grant project is but one of some sixty conservation projects authorized by the Fish & Wildlife Service in seventeen elephant range states. I have observed a number of these grant projects in operation. It would be difficult indeed to find better examples of efficient and effective implementation of Congressional action than the Service is providing in these instances. Considered individually or as a group, there can be little question that they fully carry out the intent of Congress. Today the elephant is more secure as a result, and the threat of extinction present in the 1980s has been slowed in important degree. H.R. 39 will provide the basis for a continuation of this sound grant administration.

A larger question is whether the legislative authority should be continued until 2002. In the Trust's view, the answer is an emphatic "yes."

In June of this year, the conference of CITES parties will take place in Harare. We have received unconfirmed reports that vast ivory stocks in the Far East now have been largely depleted, and that proposals may be made and pressed at the conference that will likely stimulate a resumption of high international ivory demand. In such event, the commercial poachers can be expected to resume their unrelenting attacks on the elephant, and once again that magnificent animal will be targeted for extinction. It is thus essential that the legislative basis for meaningful response be continued.

Many conservationists are fearful that the conditions of the 1980s will return. In the space of that single decade, Africa's elephant population was cut literally in half by commercial poachers—from approximately 1.3 million in 1979 to fewer than 650 thousand on the entire continent by the end of the eighties.

In Kenya, for example, where sportshunting had been stopped for many years and Richard Leakey had been appointed to head the wildlife service, the elephant population dropped precipitiously from 130,000 to only 16,000, an eight-fold decrease in less than a decade.

The incentive for all of this killing in Kenya, as well as in other range states, was the price of ivory, which at wholesale had skyrocketed to $90 or more, with no sign of a softening of demand.

In Japan, its insatiable demand for ivory had reached 75 percent of total world consumption. At this level, Japan's consumption required the killing of at least 53,000 elephants annually, more than three times Kenya's total elephant population.

It was against this background that the United States, through the Congress and President Bush, stepped in to halt international behavior that was at once reprehensible and incredibly shortsighted.

Even now, it is unclear whether the Japanese, by agreeing to the ivory ban, gave up their obsession for ivory piano keys, ivory chess sets, ivory seals and other ivory products deemed of greater value than living elephants, or whether the existing substantial inventory in Japan of elephant tusks simply was sufficient to satisfy domestic demand for awhile. Whatever the fact, reports from the Far East now suggest a revival of earlier demand and a corresponding willingness to resume the slaughter. At the CITES meeting, we suspect the truth will emerge so that appropriate action by the United States and other signatories will be possible. If not, this Subcommitee should consider looking into the matter, since it bears an important relationship to H.R. 39 and the bill's purpose to promote longterm elephant conservation.

The Trust believes that, in view of the twin needs of continuing the funding of worthwhile grant projects at an optimum level while maintaining the ability to deal effectively with the evident threat of resumed international poaching operations, the Subcommittee should authorize appropriations in H.R. 39 at a level of at least $2 million annually. A lesser amount will not provide reasonable assurance that gains under the 1988 Act can be preserved.

An example of conservation gains achieved with funds from the African Elephant Conservation Fund was the great elephant rescue of 1992-3. In that two-year period, Zimbabwe suffered its most severe drought in many decades. The death toll of wildlife was staggering. In Gonarezhou National Park, in the southeast lowveld, hundreds of elephants died of thirst or starvation, and hundreds of others faced a similar fate or death by culling unless a major rescue operation could be organized. Under a grant issued by the Fish & Wildlife Service, a former officer of Zimbabwe's Department of National Parks, Clem Coetsee, developed a removal and relocation system that has forever changed elephant conservation principles. Under the Coetsee system, an entire family group can be darted from a helicopter, using haloperidol and trilafon, two relatively new tranquilizers. The immobilized elephants are first loaded onto capture trucks and then transferred to modified ship-

ping containers on larger tractor-trailers. After receiving an antidote, the elephants are moved to predetermined new habitats. During the drought, Coetsee moved slightly fewer than a thousand elephants and thus averted a disaster of immense proportions. None of this would have been possible in the absence of funding from the Fish & Wildlife Service.

The conservation significance of the Coetsee system cannot be overstated. For the first time in the memory of man, entire family groups can be moved instead of culled. The Trust is currently hard at work researching opportunities to apply the system, and it is working closely with experts in the southern Africa region to identify and implement these opportunities, particularly in areas having pockets of excess elephants that can be moved elsewhere. Both Zimbabwe and South Africa have organized capture and removal teams in their wildlife departments. Given the resources and technical help, it is expected that other countries will follow suit. Today, in many elephant range states, elephant populations cannot be sustained in traditional habitats. New habitats must be identified to receive these animals, unless they are to be dispatched on the culling grounds. Fortunately, there are many such habitats, both publicly and privately owned. To be sure, high translocation costs and other factors raise a myriad of problems, and solutions are often hard to come by. In the future, the African Elephant Conservation Fund can be an invaluable source of help in improving the system—and thereby achieving the objectives of H.R. 39.

The Gonarezhou rescue is but one example of grant projects under the African Elephant Conservation Fund that have contributed importantly to elephant conservation. There are many others. Taken together, they justify approval of H.R. 39, with the amendment we recommend.

Thank you for this opportunity to appear before the Subcommittee.

TESTIMONY OF THE AMERICAN ZOO AND AQUARIUM ASSOCIATION (AZA)

Dear Mr. Chairman and Members of the Subcommittee:

The American Zoo and Aquarium Association (AZA) appreciates the opportunity to submit these comments in strong support of H.R 39, legislation to reauthorize the African Elephant Conservation Act (AECA) through the year 2002, and House Concurrent Resolution 8, expressing the importance for maintaining the health and stability of coral reef ecosystems.

H.R 39—African Elephant Conservation Act

AZA would like to thank Congressman Don Young and Congressman Duke Cunningham for introducing the reauthorization legislation so early in the session, and for the Subcommittee's early commitment to moving this critical bill to the House floor in 1997.

The AZA represents virtually every professionally operated zoological park, aquarium, wildlife park, and oceanarium in North America, as well as over 6,000 individual members. More than 119 million people visit the AZA's 180 zoos and aquariums each year, more than attend all professional baseball, basketball, football, and hockey games combined.

In the view of AZA, the African Elephant Conservation Act (AECA) and its subsequent Conservation Fund, is extremely important because it is the only continuous source of money to assist African countries in their conservation efforts to protect and manage this important species. The AECA money has been used to finance over 50 conservation projects in 17 range states throughout Africa, providing for $5,434,025 in programmatic funding and $8,651,332 in matching funds. The funds have allowed for enhanced habitat protection—anti-poaching equipment, and the management of these magnificent creatures. The AZA echoes Dr. Maple's testimony. The AECA deserves continued strong support from this Subcommittee and Congress because it is a good example of an effective public-private partnership. In fact, AZA urges the Administration to at least double its request of $1 million.

In 1979, the African elephant population stood at 1.3 million—only to see its number drop dramatically to approximately 700,000 in 1988 largely due to the worldwide demand for ivory. Today, there are between 286,000 to 500,000 elephants in 17 range states throughout Africa. Congress passed the AECA in 1988 to address the growing concerns for the welfare of elephant populations in Africa, and the ivory trade—a direct threat to the survival of many elephant populations. Following the enactment of the law in 1989, the U.S. imposed a ban on the importation to the U.S. of African ivory. At that time, the United States consumed 30 percent of all ivory traded in the world. At the height of the ivory trade, approximately 800 tons was being exported from Africa each year, translating to about 80,000 elephant deaths.

By taking the lead to protect the African elephant, both at home and abroad, the United States, (and those nations that followed our lead), have given certain African elephant populations the time—and protection—needed to rebound to sustainable population levels. The AECA has proven itself effective. The Act helps to protect the species from uncontrolled slaughter, while the Fund continues to make available monies for important conservation efforts that have made a difference.

While the AZA has not been a recipient of AECA funds, our members continue to work with 136 of these magnificent creatures to educate our visitors on the elephant's intelligence, complex social and family structure, and their importance to their ecosystem. Our role and that of our institutions is to educate our visitors. We hope you agree that your role is to guarantee that financial support will be available for other countries and organizations to protect the elephants in wild for generations to come.

House Concurrent Resolution 8—Coral Reef Protection

The American Zoo and Aquarium Association (AZA) also would like to comment in strong support for H.Con.Res. 8, a resolution to recognize the significance of maintaining the health and stability of coral reef ecosystems around the world. We especially thank Chairman Saxton for introducing this resolution early in the session to coincide with the ongoing efforts celebrating 1997 as the *International Year of the Reef (IYOR)* and thereby recognizing the importance of coral reef conservation.

Aside from the rainforests of Asia and South America, coral reef ecosystems are the most biologically diverse environments on Earth. They provide habitat for 25 percent of all marine life. With ten percent of the world's reefs already seriously degraded and a much greater percentage threatened, particularly in areas adjacent to human populations, H.Con.Res. 8 will help to bring greater attention to coral reef conservation. Furthermore, reefs are essential to the economic health of millions of aquatic animals and the nations of the world that depend on them. In AZA institutions, coral reef exhibits are one of the most popular exhibits in AZA aquariums today.

Since September 1996, the AZA and its members have been actively involved with the Commerce and State Departments in a public awareness campaign to promote coral reef conservation, and support efforts to highlight 1997 as *International Year of the Reef (IYOR).* AZA, in concert with a number of its member institutions, The Curtis and Edith Munson Foundation, the National Fish and Wildlife Foundation, and Martin and Chris Kratt of the PBS children's wildlife series "Kratts' Creatures", has sponsored a regional/national poster contest geared toward elementary schools children. The winner will be announced on 3 April at the National Zoo.

In addition, as part of AZA's coral reef efforts, we have assembled an education kit that will be distributed to our 180 institutions for use by teachers. The kit consists of four parts: The Coral Forest Teacher's Guide, a 5-minute and a 20-minute edited version of the "Fragile Ring of Life" video (a video produced with AID funds for the Year of the Reef), a slideshow presentation, and a copy of the International Year of the Reef public service announcement. This dynamic Educator's Kit will be distributed to AZA institutions this spring.

Coral reef environments are threatened increasingly by human activity. This legislation will assist in raising the awareness to protect these fragile "rings of life."

Thank you for your consideration of our comments.

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105TH CONGRESS
1ST SESSION

H. R. 39

To reauthorize the African Elephant Conservation Act.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 7, 1997

Mr. YOUNG of Alaska (for himself and Mr. CUNNINGHAM) introduced the following bill; which was referred to the Committee on Resources

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A BILL

To reauthorize the African Elephant Conservation Act.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "African Elephant Conservation Reauthorization Act of 1997".

SEC. 2. REAUTHORIZATION OF AFRICAN ELEPHANT CONSERVATION ACT.

Section 2306 of the African Elephant Conservation Act (16 U.S.C. 4245) is amended by striking "fiscal years" and all that follows through "1998" and inserting "fiscal years 1997, 1998, 1999, 2000, 2001, and 2002".

105TH CONGRESS
1ST SESSION

H. CON. RES. 8

Expressing the sense of Congress with respect to the significance of maintaining the health and stability of coral reef ecosystems.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 9, 1997

Mr. SAXTON (for himself and Mr. ABERCROMBIE) submitted the following concurrent resolution; which was referred to the Committee on Resources

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CONCURRENT RESOLUTION

Expressing the sense of Congress with respect to the significance of maintaining the health and stability of coral reef ecosystems.

Whereas coral reefs are among the world's most biologically diverse and productive marine habitats, often described as the tropical rain forests of the oceans;

Whereas healthy coral reefs provide the basis for subsistence, commercial fisheries, and coastal and marine tourism and are of vital economic importance to coastal States and territories of the United States including Florida, Hawaii, Puerto Rico, the U.S. Virgin Islands, Guam, and American Samoa;

Whereas healthy coral reefs function as natural, regenerating coastal barriers, protecting shorelines and coastal areas from high waves and storm surges;

Whereas the scientific community has long established that coral reefs are subject to a wide range of natural and anthropogenic threats;

Whereas the United States has taken measures to protect national coral reef resources through the designation and management of several underwater national parks (known as National Marine Sanctuaries), containing reefs of the Flower Garden Banks in the Gulf of Mexico, the Florida Keys in south Florida, and offshore Hawaii and American Samoa;

Whereas the National Oceanic and Atmospheric Administration has established itself as a global leader in coral reef stewardship by maintaining professional networks for the purposes of sharing knowledge and information on coral reefs, furnishing near real-time data collected at coral reef sites, providing a repository for historical data relating to coral reefs, and making substantial contributions to the general fund of coral reef knowledge; and

Whereas 1997 has been declared the "International Year of the Reef" by the coral reef research community and over 40 national and international scientific, conservation, and academic organizations: Now, therefore, be it

Resolved by the House of Representatives (the Senate concurring), That it is the sense of Congress to recognize the significance of maintaining the health and stability of coral reef ecosystems, by—

(1) promoting comprehensive stewardship for coral reef ecosystems;

(2) encouraging research and education on coral reef ecosystems; and

(3) improving the coordination of coral reef efforts and activities which take place within Federal agencies, academic institutions, nongovernmental organizations and industry.

African Elephant Conservation Act Grant Projects in Range Countries

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

IN REPLY REFER TO

LIST OF AECA PROJECTS FUNDED THROUGH 03/05/97

TOTAL PROJECTS: 50

TOTAL AFRICAN COUNTRIES: 17

TOTAL AFRICAN GOVERNMENTS WITH GRANT AGREEMENTS: 3 (Burkina Faso, Malawi, Tanzania)

TOTAL NON-GOVERNMENT ORGANIZATIONS WITH GRANT AGREEMENTS: 19

COUNTRY	PROJECT START	PROJECT END	PARTIES TO AGREEMENT	PROJECT SUBJECT
BOTSWANA	09/03/91	10/30/92	WWF	ELEPHANT MGT PLAN CHOBE NAT PARK
BOTSWANA	08/16/94	01/31/95	EDG	BOTSWANA ELEPHANT MEETING
BURKINA FASO	09/26/90	10/31/91	BURKINA FASO	ELEPHANT CONSERV-NAZINGA RANCH
CAMEROON	09/30/93	10/31/95	WWF	EMERG. EVAL OF CROP RAIDING ELEPHANTS
CAMEROON	08/29/91	09/30/92	STATE DEPT	ANTI-POACHING ASSIST
CAMEROON (ALSO KENYA & TANZANIA)	04/10/95	05/31/97	Washington U.	ELEPHANT GENETICS

CEN AFR REP	09/24/90	07/31/97	WWF	ELEPHANT MGT PLAN DZANGA SANGHA RESERVE
CEN AFR REP	08/24/93	06/30/94	STATE DEPT	ENVIRON STUDY-SE REGION
CEN AFR REP	09/13/94	04/30/98	WCS	DZANGA CLEARING STUDY
CEN AFR REP	09/07/94	05/31/97	WWF	BANGASSOU CENSUS
CONGO	08/31/93	04/30/98	WCS	SUPPORT OF ELEP POP IN N. CONGO
ERITREA	02/06/96	04/30/97	STATE DEPT	PROTECT REMNANT ELEPHANT POP
GABON	08/27/90	07/31/97	WWF	CONSERV IN GAMBA AREA
GHANA	07/25/95	02/28/96	BARNES(WCS)	TRAINING IN ELEP-HANT BIOL
KENYA	04/08/94	01/31/95	UNEP	ELEPHANT LIBRARY
KENYA	11/29/91	01/31/92	UNEP	RANGE STATES & DONORS MEETING
KENYA	07/22/94	01/31/95	UNEP	LUSAKA AGREEMENT
KENYA	04/21/95	06/30/98	WWF	SENIOR CONSERV ADVISER
KENYA	03/11/96	04/30/97	WWF	APPLIED RESEARCH

MALAWI	07/27/90	09/30/91	MALAWI	CITES STANDING COMM ASSIST
MALAWI	05/08/92	04/30/93	MALAWI	ELEPHANT SURVEY
MALAWI	08/19/93	06/30/95	MALAWI	DROUGHT RELIEF
MALAWI	09/01/93	05/30/98	TRAFFIC	DEVELOP CONSERV STRATEGY
MALAWI	08/19/92	12/31/93	CITES	CITES IMPLEMENT SEMINAR
MALI	09/07/95	12/31/96	STATE DEPT	PROTECT GOURMA ELEPHANTS
MOZAMBIQUE	05/02/95	10/31/96	EIA	REHAB MAPUTO RESERVE
NAMIBIA	04/01/93	04/30/93	WWF	EMERG SUPPORT TO DESERT ELEPHANTS
NAMIBIA	09/10/92	04/30/94	NAB NAT FND	ELEPHANT SURVEY
SENEGAL	05/25/93	04/30/96	FOA	ANTI-POACHING ASSIST FOR NIOKOLO KOBA PARK
SENEGAL	09/18/96	02/28/97	IUCN	RANGE STATE MEETING
SWITZERLAND	09/13/91	01/31/98	IUCN	AESG CORE SUPPORT
SWITZERLAND	04/03/96	04/30/99	IUCN	ENHANCE DATABASE

TANZANIA	03/21/91	10/30/91	FOA	ANTI-POACHING ASSIST - VEHICLES
TANZANIA	06/23/93	09/30/96	FOC	ELEPHANT SURVEY-PROTECT IN SERENGETI
TANZANIA	05/08/92	12/31/96	ASC	ANTI-POACHING ASSIST
TANZANIA	08/18/93	06/30/94	TANZANIA	PROP FOR EASTERN REGION MEETING
TANZANIA	02/24/95	05/31/98	SCI	GAME SCOUT QUOTA MONITOR
TANZANIA	03/03/95	07/31/97	CWC	ASSESS IMPACTS OF POACHING
TANZANIA	12/27/96	01/31/98	SCI	ELEPHANT SURVEYS
UNITED KINGDOM	08/27/90	04/30/93	AECCG/WWF	AECCG CORE SUPPORT
UNITED KINGDOM	09/10/92	09/30/93	AECCG	COORD OF WEST & CENTRAL REGIONAL MEETINGS
UNITED KINGDOM	06/20/95	01/31/96	EDG	ASSESS INVEST-MENTS
ZAMBIA	07/18/91	05/31/97	ASC	GAME SCOUT SUPPORT

ZAMBIA	08/03/90	10/30/91	WWF	ANTI-CORRUPT COMM
ZIMBABWE	08/03/92	12/31/96	STATE DEPT	ELEPHANT TRANS-LOCATION
ZIMBABWE	06/08/91	10/31/94	ASC	ANTI-POACHING ASSIST
ZIMBABWE	02/03/92	10/31/93	ASC	LIASON SUPPORT
ZIMBABWE	12/23/92	04/30/98	SAWT	CONSERV AWARDS
ZIMBABWE	02/24/95	06/30/97	SCI	SUPPORT TO CAMPFIRE
ZIMBABWE	08/14/95	01/31/97	Cambridge U.	ECOLOGY AND DET-ERRENCE OF ELE-PHANTS

KEY TO PARTIES WITH AGREEMENTS

AECCG - African Elephant Consevation Coordination Group

ASC - African Safari Club of Washington, DC

CITES - Convention on International Trade in Endangered Species

CWC - Center for Wildlife Conservation

EDG - Environment and Development Group

EIA - Environmental Investigation Agency

FOA - Friends of Animals

FOC -Friends of Conservation

IUCN - The World Conservation Union

NAB NAT FND - Namibia Nature Foundation

SAWT - Southern Africa Wildlife Trust

SCI - Safari Club International

TRAFFIC - Trade Records Analysis of Fauna and Flora in Commerce (branch of WWF)

UNEP - United Nations Environmental Program

WCS - Wildlife Conservation Society

WWF - World Wildlife Fund (US and Intl)

AFRICAN ELEPHANT CONSERVATION ACT GRANT PROGRAM

The African Elephant Conservation Act (AECA) was enacted in October, 1988 in response to the then alarming decline of African elephants since the mid-1970's. This Act provides for two actions: (1) the review of African elephant conservation programs in each ivory producing country and the establishment of a moratorium on ivory from any country that fails to maintain an adequate elephant conservation program and (2) the development of a grant program to provide financial assistance to support protection, conservation, and management of African elephants. In accordance with the first provision, the President, in June, 1989, established a moratorium on all ivory imports. While it was determined that several countries were able to maintain adequate conservation programs internally, there was no effective mechanism to control international trade in ivory products. That moratorium remains in effect.

A total not to exceed $5 million for each of fiscal years 1989, 1990, 1991, 1992 and 1993 was authorized to be appropriated to an African Elephant Conservation Fund established for the grant program.

The Congress appropriated $350,000 in fiscal year 1990, $765,999 in fiscal year 1991, $957,000 in fiscal year 1992, and $1,159,000 in fiscal year 1993. The AECA was reauthorized in 1992 for 7 years. A total of $1,137,000 was appropriated by Congress for fiscal year 1994, a total of $1,166,767 was appropriated for fiscal year 1995 a total of $600,000 was appropriated for fiscal year 1996 and, a total of $1,000,000 was appropriated for fiscal year 1997.

Over 300 proposals exceeding $240 million have been received under the program. Most proposals total cost far exceed the funds available annually, and as such matching donor cooperators and reduced scopes of work are developed for highest priority project proposals based on program criteria.

To date, a total of 50 projects, in 17 African countries, have been funded with a combined total of $5,434,025 obligated for the program. To administer these projects, grant agreements have been written with a total of 3 African governments (Burkina Faso, Malawi, and Tanzania) and a total of 19 non-government organizations. In addition, $8,651,332 has been generated through matching funds to augment the support made available through the grant program.

CRITERIA FOR FUNDING GRANT PROJECTS

The Act established specific criteria for project proposals and project review and approval. Additionally the Conference Report, adopted with the passage of the Act, identified priority actions for funding. The Fish and Wildlife Service uses these criteria and direction in administering the grant program. Projects are evaluated for funding based on the following criteria:

PROJECTS WITH AFRICAN GOVERNMENT AGENCIES

The Act encourages African government agencies responsible for African elephant conservation to submit proposals and, requires that evidence of support by governmental entities of countries where the project is to be conducted accompany any project proposal submitted by nongovernmental organizations or the private sector. The Service works through the Department of State to coordinate local government participation. African countries that demonstrate a desire to enhance elephant conservation programs will receive priority for funding. Also, projects where two or more African countries work cooperatively on elephant conservation programs will receive priority for funding. National government priorities are considered first priority for funding if several projects are received for a country.

PROJECTS DIRECTED AT ANTI-POACHING

The Conference Report

Identified assistance that would be used in efforts to halt the poaching of elephants as that most urgently needed by the African countries and directed that a high priority be given to projects that would assist such efforts. The majority of project proposals received to date indicate that, even with the recent ban on ivory importations, local government priorities are for anti-poaching assistance. Such projects receive first priority for funding.

PROJECTS THAT ADDRESS COUNTRY ELEPHANT CONSERVATION PLANS

The Act encourages the development of biologically sound conservation programs and establishes criteria that give priority to projects that develop sound scientific information necessary to insure healthy, sustainable African elephant populations. An international coordination group has assisted range countries in developing country conservation plans, and other countries have produced theirs independently. The goal of this process is to assist African governments by providing the means to maintain ecologically viable elephant populations. These plans identify country specific actions required to maintain elephant populations at sustainable levels. Projects that support implementation of country plans receive priority for funding.

HIGHEST PRIORITY PROJECTS IN EACH REGION

The Act recognizes the importance of the elephant in maintaining the biological diversity of Africa and encourages all countries within the range of the African elephant to support its conservation. The Act recognizes that some African countries have effective elephant conservation programs, but that many others do not have sufficient resources to properly manage, conserve and protect their elephant populations. Priority will be given to funding projects in each of the four geographic regions in Africa to restore and maintain healthy elephant populations, in balance with local ecological conditions, over the widest possible extent of their historic range.

COOPERATIVE PROJECTS WITH MATCHING FUNDS

The Act provides for the acceptance and use of donations to provide assistance to projects funded under the grant program. Priority will be given to cooperative projects that provide for matching funds from other sources and/or provide interim support for projects with future funding secured.

FOR FURTHER INFORMATION CONTACT:

Biologist Mark Phillips, U.S. Fish and Wildlife Service, Office of Management Authority, 4401 N. Fairfax Drive Room 420C, Arlington, VA 22203, telephone 703/358-2104, extension 5450.

PROJECTS FUNDED THROUGH 3/5/97

RANGE-WIDE PROJECTS

AECCG activities

Funding was provided to the African Elephant Conservation Coordinating Group to support development and maintenance of the African Elephant Project Database, to initiate the development of specific Elephant Conservation Plans for each range state, and to support regional meetings on elephant conservation in West and Central Africa. (FY92)

AESG activities

Funding was provided to the International Union for the Conservation of Nature to assist the African Elephant Specialist Group in various African elephant conservation activities and in its efforts to develop the most current data base for elephant conservation. (FY91, FY93, and FY96)

Awards Program

Funding was provided to the Southern Africa Wildlife Trust to support a meritorious service awards program to recognize wildlife rangers that have demonstrated bravery beyond the call of duty in African elephant anti-poaching enforcement operations. (FY93, FY94 and FY95)

CITES Law Enforcement Seminar

Funding was provided to the Convention on International Trade in Endangered Species Secretariat to assist in the development of a law enforcement seminar dealing specifically with African elephant anti-poaching and law enforcement issues. The seminar would develop a model program for use throughout Africa. (FY92)

EDG Activities

Two projects were funded in cooperation with the Environment & Development Group. The first, to coordinate a meeting on the African elephant in Botswana, and the second, to make an assessment of investments in elephant conservation. (FY94, FY95)

Nairobi Conference

In corporation with the European Economic Community and the Government of France, funding was provided to the United Nations Environmental Program to hold an international meeting in Nairobi, Kenya on elephant conservation focusing on the coordinated development of priority projects for elephant conservation and coordination of donor country bi-lateral project funding. (FY92)

Range States Meeting

Funding was provided to The World Conservation Union to conduct a meeting promoting dialogue between African countries on the conservation of the African elephant. (FY96)

TRAFFIC

Funding was provided to the TRAFFIC branch of the World Wildlife Fund for Nature for assistance in African elephant conservation related activites associated with the establishment of a TRAFFIC office for EAST/SOUTHERN Africa. (FY93 and FY97)

UNEP

Funding was provided to the United Nations Environmemt Programme for the development of the Lusaka Agreement on Co-operative Law Enforcement Operations directed at illegal trade in wild fauna and flora, with a focus on elephant ivory. (FY94)

Washington University

Funding was provided to conduct genetic research to explore the possibility of the existence of two separate species of African elephant and the management implications of such a possiblility. (FY95)

WWF

Funding was provided to World Wide Fund for Nature to provide technical assistance on elephant conservation projects throughout the African elephant range states (FY95).

COUNTRY SPECIFIC PROJECTS

Botswana

Funding was provided in cooperation with the World Wildlife Fund for Nature and the Department of Wildlife and National Parks to assist in the development and implementation of an elephant conservation plan for Chobe National Park (FY91).

Burkina Faso

Funding was provided to the Director of National Parks and Reserves for elephant anti-poaching and management assistance (FY90).

Cameroon

Three projects were funded. One, in cooperation with the U.S. Embassy, provided equipment to the Department of Wildlife and National Parks for elephant anti-poaching operations in Waza National Park. The second in cooperation with the World Wildlife Fund for Nature provided funding to assess the impacts of crop raiding elephants, and the third, also in cooperation with the World Wide Fund for Nature provided funding for the monitoring of elephant populations (FY91, FY93 & FY95).

Central African Republic

Four projects were funded. Two were in cooperation with the World Wildlife Fund, to provide elephant anti-poaching equipment and assistance in Dzanga-Sangha Reserve, and elephant surveys in the Bangassou forests. A third, with the U.S. Embassy, was to facilitate outreach to rural communities on elephant conservation. The fourth project was in cooperation with the Wildlife Conservation Society for elephant research (FY90, FY93, FY94 & FY 96).

Congo

Funding was provided in cooporation with Wildlife Conservation Society to provide anti-poaching equipment and assistance in the Congo (FY93 & FY96).

Eritrea

Funding was provided for the protection of a remnant population of elephants recently discovered along the Eritrea/Ethiopia border in cooperation with the State Department (FY96).

Gabon

Funding was provided in cooperation with the World Wildlife Fund and the Department of Wildlife and Hunting for anti-poaching assistance in the Petit Loango Faunal Reserve, and the Gamba Protected Area (FY90 & FY93).

Ghana

Funding was provided in cooperation with the Wildlife Conservation Society to train Ghanian wildlife officers in elephant biology and ecology (FY95).

Kenya

Two projects were funded. The first provided funding for the compilation of a comprehensive reference library on the African elephant, in cooperation with UNEP. The second provided funding for improving techniques in African elephant applied research and monitoring, in cooperation with the World Wide Fund for Nature (FY94 & FY96).

Malawi

Three projects were funded in Malawi with the Department of National Parks, Wildlife and Tourism. One project conducted a status survey of elephants in Malawi's protected areas, a second provided emergency assistance for water due to the drought conditions, and a third provided assistance to the CITES Standing Committee (FY90, FY92 & FY93).

Mali

One project was funded in cooperation with the State Department to manage the elephants in the Gourma region (FY95).

Mozambique

Funding was provided in cooperation with the Environmental Investigation Agency and the World Bank for the rehabilitation of the Maputo Elephant Reserve (FY95).

Namibia

Two projects were funded. One was in cooperation with the World Wildlife Fund, to respond to an emergency disease outbreak in the desert elephant due to the drought. The second was in cooperation with the Namibia Nature Foundation to coordinate transborder aerial elephant status surveys (FY92 & FY93).

Senegal

A cooperative project was funded with Senegal National Parks Service and the Friends of Animals to provide anti-poaching assistance to Niokolo-Koba National Park, which contains the western most remaining elephant population on the continent (FY93 & FY95).

Tanzania

Seven projects were funded in Tanzania in cooperation with the Tanzania Department of Wildlife. One assisted the Department in the administration of the Eastern Africa Regional Meeting on elephant management and conservation. The second provided anti-poaching equipment and assistance to the Department of Wildlife in cooperation with the African Safari Club of Washington, D.C.. The third provided excess U.S. military vehicles to the Department for elephant anti-poaching operations in cooperation with the Friends of Animals. The fourth was a cooperative project with the Friends of Conservation to provide security assistance and to conduct status surveys of elephants in the Serengeti Ecosystem. The fifth was a project with Safari Club International supporting a game scout quota monitoring program. The sixth was a project with the Center for Wildlife Conservation assessing long term impacts of elephant poaching. The seventh project was with Safari Club International to conduct a country-wide survey of the elephant population (FY91-93, FY95, & FY97).

Zambia

Two projects were funded in Zambia. One was a cooperative project with the World Wildlife Fund and the Zambia Anti-Corruption Commission to establish a Species Protection Unit to assist in elephant anti-poaching efforts. The second was a cooperative project with the African Safari Club of Washington, D.C. and the Minister of Tourism and Natural Resources to provide elephant anti-poaching equipment and assistance to their Remote Game Scout Program (FY90, FY91 & FY95).

Zimbabwe

Five projects were funded in Zimbabwe. Two were in cooperation with the African Safari Club of Washington, D.C. and the Department of National Parks and Wildlife, for elephant anti-poaching equipment and assistance in the Lower Zambezi Valley and, for an intelligence liason support project. The third, in cooperation with the American Embassy provided emergency assistance to the Department to assist in the development of techniques for translocation of elephants. The fourth was a project with Safari Club International to provide training to rural communities in the setting and monitoring of hunting quotas. The fifth was a project with the University of Cambridge to study the ecology and deterrence of crop-raiding elephants. (FY91, FY92, & FY95)

CURRENT PROJECTS

Country	Start Date	End Date	Recipient	Project Description
Cameroon (also Kenya & Tanzania)	04/10/95	05/31/97	Washington U.	Elephant Genetics
Central African Republic	09/07/94	07/31/97	WWF	Elephant Management Plan - Dzanga Sangha Reserve
Central African Republic	03/19/96	04/30/98	WCS	Dzanga Clearing Study
Central African Republic	09/07/94	05/31/97	WWF	Bangassou Census
Congo	03/19/96	04/30/98	WCS	Support of Elephant - Population in North Congo
Eritrea	02/06/96	04/30/97	U.S. State Department	Protect Remnant Elephant Population
Gabon	09/21/93	07/31/97	WWF	Conservation in Gamba Protected Area
Kenya	04/21/95	03/31/97	WWF	Senior Conservation Adviser
Kenya	03/11/96	04/30/97	WWF	Applied Research
Malawi	10/31/96	05/30/98	TRAFFIC	Develop Conservation Strategy
Switzerland	08/10/93	01/31/98	IUCN	AESG Core Support
Switzerland	04/03/96	04/30/99	IUCN	Enhance Database
Tanzania	03/03/95	06/30/97	CWC	Assess Impacts of Poaching
Tanzania	12/27/96	01/31/98	SCI	Elephant Surveys
Tanzania	pending	05/31/98	SCI	Game Scout Quota Monitoring Program
Zambia	04/03/95	05/31/97	ASC	Game Scout Support
Zimbabwe	04/06/95	04/30/98	SAWT	Conservation Awards
Zimbabwe	02/24/95	04/30/97	SCI	Support to Campfire

GUIDELINES FOR SUBMISSION OF PROPOSALS

GENERAL REQUIREMENTS

Who Can Apply?

Any African government agency responsible for African elepnant conservation and protection, the Secretariat of the Convention on International Trade in Endangered Species, and any organization or individual with experience in African elephant conservation may submit a project proposal for consideration for funding.

What Is the Deadline for Submitting Proposals?

There is no formal solicitation process for receipt of proposals and unsolicited proposals may be received at any time. Funds are made available to the program through annual Congressional appropriations at the beginning of each federal fiscal year, on or about October 1. Proposals are reviewed and selected for funding on an "as received" basis. The last date for receipt of a proposal for consideration for funding from the current fiscal year is June 1. Depending on the proposals received, all available funds may be allocated to approved projects prior to that date. Alternative proposals will continue to be accepted and prioritized for funding in the event that projects initially approved for funding cannot be obligated, or for consideration for funding in the next fiscal year if funds become available.

What Types of Projects Are Eligible?

Proposed projects must provide for on-the-ground activities that enhance African elephant populations in one or more range countries in Africa. Any conservation activity including protection, management (in the broad sense) and management orieinted research may be considered for funding. Given the relatively modest level of funding and its annual limitations, the grant program is designed to provide quick, short term support for holding actions and other conservation measures in concert with existing or proposed long range activities or until such activities are in place.

Can Projects Be for More than One Year?

The duration of proposed projects should be based on the objectives to be accomplished and may be multisegmented. Segments need not be 12 months in length and may begin at any time during the fiscal year, but no sooner than the date of signature on the grant agreement by the Fish and Wildlife Service. Projects that begin during one fiscal year (October 1-September 30) may be carried out in part or in whole during the following fiscal year(s). Although projects may be multi-segmented, grant agreements may cover only one segment at a time.

Due to the relatively limited funds, and because appropriations to the Fund are made on an annual basis by the Congress, future funding of multisegment projects cannot be guaranteed. Priority may be given to continuing successful multi-segment projects if funds are made available to the program in future fiscal years. In any event, projects should be designed such that objectives can be accomplishable within no more than three segments.

Is There a Budget Ceiling?

There are no restrictions on the amount of funds requested per project segment, or total project costs. The Fish and Wildlife Service is coordinating this program with other U.S. Government agencies ana other potential donors and as such may be able to assist with funding of projects beyond the scope of this program.

Program priorities are to maximize effective ulilization of the limited funds through cost efficient projects. and cooperative efforts with other donors. Projects should be structured if possible into component parts such that a part of an overall project may be funded. While the final obligations may vary as a function of the project proposals received and approved, it is anticipated that the Fish and Wildlife Service contribution under the grant program for a segment of any one project generally will not exceed S150,000.

What Is the Selection Process?

The process begins upon receipt of a written project proposal by the U.S. Fish and Wildlife Service at the address listed below. The proposal should conform to the prescribed format. Those proposals not submitted directly (or through an American embassy) from an African government agency must include evldence of support of the project by appropriate government entities in the country where the project will be conducted.

If the proposal meets the general criteria of the grant program, the Fish and Wildlife Service will initiate contact with that African country through the State Department to determine the relationship of the proposed project to that country's priorities for African elephant conservation. In the event that several proposals are received from various sources for a particular country, that country's priorities for funding will be given first consideration. Multiple projects may be funded in one country, however priority will be given to countries without any funded projects over multiple projects in one country.

Proposals will be evaluated on the merits of the objectives and anticipated results relative to overall African elephant conservation as determined by five general criteria that have been established to guide funding allocations under the grant program.

Additionally, country priorities have been established by regions. These should be considered general criteria and priorities to serve as a basis for project justification. Proposals not meeting one or more of these criteria or country priorities may still be considered for funding if the proposal presents adequate justification as to why the project is considered important enough to override established guidelines and priorities.

On the basis of the above evaluation, coordination with the local country involved, and following any subsequent request for clarification, change in scope, or modification, the proposal is either rejected, or recommended to the Director of the Fish and Wildlife Service for approval.

How Are Approved Projects Funded?

Once a project proposal has been approved for funding, a separate grant agreement is negotiated between the Fish and Wildlife Service and the grant recipient. The grant agreement is the legal document that obligates the U.S. government and the recipient to the terms and conditions of the project. The grant agreement explains in detail the terms and conditions under which the project will be performed and funds will be disbursed. The grant agreement must be signed by the entity responsible for completion of the project. The recipient may contract with other entities for all or part of the work to be performed, but remains responsible to meet the terms and conditions of the grant agreement.

No work can be funded or expenditures reimbursed for any project activity prior to the date that the grant agreement is signed by the Fish ana Wildlife Service Contracting Officer, although prior written approval of the project for funding may nave been provided.

GRANT PROJECT COUNTRY PRIORITIES

Priority will be given to continuing and possibly expanding successful projects if there is a continuing need, and following a review and evaluation of progress toward established project objectives.

In addition the following general country priorities have been established. Country priorities are based on a number of factors not limited to but including an evaluation of the current status and relative importance of African elephant populations in that country, continuing threats to the elephant population, the potential for recovery and/or management of existing elephant populations, cooperative efforts with bordering nations that share migrating populations, a demonstrated interest in elephant conservation and other wildlife conservation including participation in international treaties such as CITES, and the current level of other bilateral funding for elephant conservation in that country. Country priorities may change during the course of the grant year, and may also be determined by some degree as a function of the proposals received. Specific proposals are not solicited from any particular country, and proposals will be accepted and considered for any country within the current range of the African elephant.

West Africa

An estimated 3 percent (19,000) of the total remaining continent-wide elephant population occurs in the west region of Africa, scattered over 13 range states. A few populations may be stable, but most are small, highly fragmented and continue to decline. Burkina Faso, Benin, Niger (the Park "W" area bordering Niger and Burkina Faso), Ghana, and Cote d'Ivoire are priority countries in west Africa. The West Africa Region includes: Benin, Burkina Faso, Cote d'Ivoire, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

Central Africa

An estimated 45 percent (277,000) of the total remaining continent-wide elephant population occurs in central Africa, with significant populations in 5 out of the 7 range states. Only Gabon's population appears stable, all others have experienced significant declines. The Central African Republic. Cameroon, Congo and Gabon are priority countries in central Africa. The central Africa Region Includes: Cameroon, Central African Republic, Chad, Congo,

Equatorial Guinea, Gabon, and Zaire.

East Africa

An estimated 18 percent (110,000) of the total remaining continent-wide elephant population occurs in east Africa, with significant populations remaining in only 3 out of 7 range states. All have experienced a disastrous decline. Tanzania and Kenya and Uganda are priority countries in east Africa. The East Africa Region includes: Ethiopia, Kenya, Rwanda, Somalia, Sudan, Tanzania, and Uganda.

Southern Africa

An estimated 33 percent (204,000) of the total remaining continent-wide elephant population occurs in southern Africa, with populations concentrated in 3 of 8 range states. Five of the 8 have populations that are stable or increasing. Botswana, Malawi, Namibia, South Africa, Zambia, and Zimbabwe are priority countries for Southern Africa. The Southern Africa Region includes: Angola, Botswana, Malawi, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe.

PROPOSAL FORMAT AND INSTRUCTIONS

GENERAL OUTLINE

The following general outline is intended as a guide to the preparation of proposals for consideralion for funding under the Fish and Wildlife Service African Elephant Conservation Act grant proqram. Each section presents a discussion of the general types or informatlon requested, the need for the information and how it will be used in the selection/funding process. Depending on the type of project proposal, some of the information requested may not be relevant or may be redundant, while other information not specifically requested may be needed to fully describe and justify the proposal.

Part I: Summary

A project summary should be prepared containing the following relevant information.

TITLE:

A short, descriptive sentence that includes the location, activities and country of the proposed project.

PROJECT ORIGINATOR:

This refers to the government agency, nongovernmental organization, institution or private organization or individual that develops the proposal and submits it for funding. Unless otherwise specified, this is the entity that is responsible for implementing the project, is designated to receive funds, and will sign the grant agreement obligating funds. The full mailing address, telephone number and name of authorizing individual should be included. If different, the name and telephone number of a technical contact who will serve as the project officer for the grant agreement should be included.

PROJECT COOPERATORS:

This refers to those government agencies, nongovernmental organizations, institutions and/or private organizations or individuals if any, that will contribute substantially to the successful completion of the project, financially or otherwise. Such contributions may be direct, such as the provision of funds or equipment. or may be in kind, such as a waiver or reduction of overhead cost or the amount of salaries and per diem expenses of local game scouts provided by a government agency to support the project.

Most projects involve some type of cooperative effort. It is important that these efforts be quantified, the cooperators identified and the cost estimates included in the overall project budget estimate. Often project proposals do not appear to have adequate resources to achieve their stated objectives because cooperators have not been adequately identified and their contributions have not been discussed in the proposal. If the project originator intends to subcontract implementation of the project to other entities, then those should be listed as cooperators also.

If the project originator is not an African government agency, then the project cooperator

list must include the appropriate government agency in the country where the project is to be conducted. Evidence of support of the project from that agency at (the appropriate level) must be included as an attacnment to the project proposal.

The name(s) and address(es) of any substantial cooperator(s) should be listed in this section, and their estimated contribution and importance to the success of the project reflected in other appropriate sections of the proposal.

PROJECT EXECUTANT AND L0CATION:

Name(s) and organization of individual(s) responsible for the execution of the project in the field and the field location(s) of project activities should be listed.

PROJECT PERIOD:

The proposed starting date of the project should be indicated, as well as the completion date. Multi-segmented projects should identify the starting and ending dates of each segment and the date of final project completion.

FUNDS REQUESTED:

A summary of the total project budget should be provided in table format indicating the estimated costs to be incurred by each cooperator by project segment, and for the total project.

Part II: Objective

The overall objective of the project should be stated.

The objective statement should establish a quantifiable output to be accomplished as a result of the project and some measure of that accomplishment. Project accomplishments should be presented as resource outputs and not process or procedures. Projects may have multiple objectives, but each objective should have a measurable resource output. If the proposed elephant project is a part of a broader elephant conservation goal, then the project objective(s) should be limited to the project's contribution to that broader goal. The broader conservation goal should be discussed in the Introduction/Background Section.

Anti-poaching project objectives should be stated in terms of anticipated results of successful efforts, such as the anticipated level of reduction in numbers of elephants lost to poachers, and/or numbers of elephants or size of area(s) protected.

Typically research, survey and management projects are designed to develop information or provide a management action to enhance conservation efforts. While the project activities may involve conducting a census or survey, testing a hypothesis, or constructing a fence, the project objective should relate these processes or procedures to resource results. The objective of an elephant status survey project should not be to conduct a survey but to establish a quantified population level to be used as a measure of the success or failure of a conservation action. The objective of a survey project might be to evaluate the effectiveness of increased anti-poaching activities as determined by changes in population levels, or age/sex ratios.

Part III: Introduction

This Section should provide a short summary which establisnes the context of the proposed project.

Information provided in this part of the proposal is intended to relate the proposal to overall African elephant conservation. It should include general background information on the country and its ecology, the status of its African elephant populations, and the relationship of elephant conservation to other biological resource conservation issues. An overview of existing conservation efforts, threats to the species, and any relationship of the proposed project to ongoing elephant conservation activities should be discussed. References to documented plans or programs of which the proposal may be a part, should be included.

For research, survey or management proposals, this Section should include the relationship of the proposed activity to existing information on the subject proposal, its significance. and how the proposal objectives, if successfully completed, will ennance that data base and elephant conservation.

Part IV: Justification

This Section should relate the objectives of the proposed project to the five criteria for funding grant projects outlined above.

Projects will be evaluated and prioritized for funding relative to the established criteria and country priorities. This Section is designed to facilitate that analysis. Each of the criteria are general statements outlining the priorities of the grant program. A discussion of the proposed project relative to each of these priorities should be included in this Section. The first criterion is self explanatory. Information should concentrate on the relationship and support of the project by the national government.

Criterion 2, anti-poaching activities, are the focus of the grant program at this time. Other conservation activities will be considered. However, it is important that the relationship of those activities to anti-poaching, if any, be explained. Otherwise, a justification for why other conservation activities should be considered over anti-poaching in this particular instance should be presented.

Criterion 3 requires that projects address country elephant conservation plans. It is understood that this is a dynamic process. If the proposed activity does not address an identified population, then this Section should include an analysis why the population should be considered key, or how the project objectives enhance overall African elephant conservation.

Criterion 4 addresses maintaining the biological diversity of African elephants. This section should include information on the uniqueness of the populations to be affected by the project and/or the application of the project objectives to African elephant conservation.

Criterion 5 is self explanatory. Cooperative projects are encouraged and receive priority for funding. Any such efforts should be discussed in this Section in detail.

Part V: Procedures/Activities

This Section should present a logical strategic plan for implementing the proposed objeclives. This section should provide a description of the procedures that will be needed to achieve the stated objective. If appropriate, an implementation schedule should be included. This Section should describe in detail how the proposal is to be implemented. For research and survey projects the experimental design and hypothesis tests should be included.

Part VI: Budget

Details of the budget should be provided, in table format as indicated below. It is critical that an overall budget picture be presented, including all significant cooperators (see Generai Requirements). A matrix table should be included that clearly identifies the requested FWS share contribution by budget item and by project segment. Projects that include purchase of equipment must identify major equipment items (any item over $500) by contributor. An evaluation of the proposed budget will be conducted to assure that it reasonably approximates that necessary to achieve the stated project objectives. All budget information should be considered to be best estimate available at the time of submission, and will be used for project evaluation purposes. A sample budget table is included.

Part VII: Attachments

Any referenced documents, letters of endorsement, personnel vitae, literature cited, etc. should be included as attachments in this Section. A list of items attached should preface this Section.

PROPOSED PROJECT BUDGET (U.S.$)

Item	Estimated Cost	FWS Share	Source 1 Share	Source 2 Share
Vehicle				
Uniforms				
Field Equipment				
Vehicle Maint.				
Printing Costs				
Total				

Notes:

- each cooperator should be identified and listed separately
- FWS requires that all proposals have matching funds
- line items on budget need not be identical to those examples listed above
- make certain that all line items in the budget are referred to in the text of the grant proposal
- line items such as "miscellaneous" and "contingencies" are not acceptable
- FWS will only provide funding for direct costs, such as equipment and supplies, and will not fund indirect costs assessed by other organizations towards the completion of a given project
- project totals are to be included under Part I, Funds Requested

AFRICAN ELEPHANT CONSERVATION ACT

§ 4201. Statement of purpose

The purpose of this title is to perpetuate healthy populations of African elephants.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, § 2002, 102 Stat. 2315.)

§ 4202. Congressional

The Congress finds the following:

(1) Elephant populations in Africa have declined at an alarming rate since the mid-1970's.

(2) The large illegal trade in African elephant ivory is the major cause of this decline and threatens the continued existence of the African elephant.

(3) The African elephant is listed as threatened under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) and its continued existence will be further jeopardized if this decline is not reversed.

(4) Because African elephant ivory is indistinguishable from Asian elephant ivory, there is a need to ensure that the trade in African elephant ivory does not further endanger the Asian elephant, which is listed as endangered under section 4 of the Endangered Species Act of 1973 (16 U.S.C. 1533) and under Appendix I of CITES.

(5) In response to the significant illegal trade in African elephant ivory, the parties to CITES established the CITES Ivory Control System to curtail the illegal trade and to encourage African countries to manage, conserve, and protect their African elephant populations.

(6) The CITES Ivory Control System entered into force recently and should be allowed to continue in force for a reasonable period of time to assess its effectiveness in curtailing the illegal trade in African elephant ivory.

(7) Although some African countries have effective African elephant conservation programs, many do not have sufficient resources to properly manage, conserve, and protect their elephant populations.

(8) The United States, as a party to CITES and a large market for worked ivory, shares responsibility for supporting and implementing measures to stop the illegal trade in African elephant ivory and to provide for the conservation of the African elephant.

(9) There is no evidence that sport hunting is part of the poaching that contributes to the illegal trade in African elephant ivory, and there is evidence that the proper utilization of well-managed elephant populations provides an important source of funding for African elephant conservation programs.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, § 2003, 102 Stat. 2315.)

§ 4203. Statement of policy

It is the policy of the United States--

(1) to assist in the conservation and protection of the African elephant by supporting the conservation programs of African countries and the CITES Secretariat; and

(2) to provide financial resources for those programs.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, § 2004, 102 Stat. 2316.)

§ 4211. Provision of assistance

(a) In general. The Secretary may provide financial assistance under this part [16 USCS §§ 4211 et seq.]from the African Elephant Conservation Fund for approved projects for research, conservation, management, or protection of African elephants.

(b) Project proposal. Any African government agency responsible for African elephant conservation and protection, the CITES Secretariat, and any organization or individual with experience in African elephant conservation may submit to the Secretary a project proposal under this section. Each such proposal shall contain--

(1) the name of the person responsible for conducting the project;

(2) a succinct statement of the need for and purposes of the project;

(3) a description of the qualifications of the individuals who will be conducting the project;

(4) an estimate of the funds and time required to complete the project;

(5) evidence of support of the project by governmental entities of countries within which the project will be conducted, if such support may be important for the success of the project; and

(6) any other information the Secretary considers to be necessary or appropriate for evaluating the eligibility of the project for funding under this title.

(c) Project review and approval. The Secretary shall review each project proposal to determine if it meets the criteria set forth in subsection (d) and otherwise merits assistance under this title. Not later than six months after receiving a project proposal, and subject to the availability of funds, the Secretary shall approve or disapprove the proposal and provide written notification to the person who submitted the proposal and to each country within which the project is proposed to be conducted.

(d) Criteria for approval. The Secretary may approve a project under this section if the project will enhance programs for African elephant research, conservation, management, or protection by--

(1) developing in a usable form sound scientific information on African elephant habitat condition and carrying capacity, total elephant numbers and population trends, or annual reproduction and mortality; or

(2) assisting efforts--

(A) to ensure that any taking of African elephants in the country is effectively controlled and monitored;

(B) to implement conservation programs to provide for healthy, sustainable African elephant populations; or

(C) to enhance compliance with the CITES Ivory Control System.

(e) Project reporting. Each entity that receives assistance under this section shall provide such periodic reports to the Director of the United States Fish and Wildlife Service as the Director considers relevant and appropriate. Each report shall include all information requested by the Director for evaluating the progress and success of the project.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part I, § 2101, 102 Stat. 2316.)

§ 4212. African Elephant Conservation Fund

(a) Establishment. There is established in the general fund of the Treasury a separate account to be known as the "African Elephant Conservation Fund", which shall consist of amounts deposited into the Fund by the Secretary of the Treasury under subsection (b).

(b) Deposits into Fund. The Secretary of the Treasury shall deposit into the Fund--

(1) subject to appropriations, all amounts received by the United States in the form of penalties under section 2204 [16 USCS § 4224]which are not used to pay rewards under section 2205 [16 USCS § 4225];

(2) amounts received by the Secretary of the Interior in the form of donations under subsection (d); and

(3) other amounts appropriated to the Fund to carry out this part [16 USCS §§ 4211 et seq.].

(c) Use

(1) In general. Subject to paragraph (2), amounts in the Fund may be used by the Secretary, without further appropriation, to provide assistance under this part [16 USCS §§ 4211 et seq.].

(2) Administration. Not more than three percent of amounts appropriated to the Fund for a fiscal year may be used by the Secretary to administer the Fund for that fiscal year.

(d) Acceptance and use of donations. The Secretary may accept and use donations of funds to provide assistance under this part [16 USCS §§ 4211 et seq.]. Amounts received by the Secretary in the form of such donations shall be transferred by the Secretary to the Secretary of the Treasury for deposit into the Fund.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part I, § 2102, 102 Stat. 2317.)

§ 4213. Annual reports

The Secretary shall submit an annual report to the Congress not later than January 31 of each year regarding the Fund and the status of the African elephant. Each such report shall include with respect to the year for which the report is submitted a description of--

(1) the total amounts deposited into and expended from the Fund;

(2) the costs associated with the administration of the Fund;

(3) a summary of the projects for which the Secretary has provided assistance under this part [16 USCS §§ 4211 et seq.]and an evaluation of those projects; and

(4) an evaluation of African elephant populations and whether the CITES Ivory Control System is functioning effectively to control the illegal trade in African elephant ivory.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part I, § 2103, 102 Stat. 2317.)

§ 4221. Review of African elephant conservation programs

(a) In general. Within one month after the date of the enactment of this title [enacted Oct. 7, 1988], the Secretary shall issue a call for information on the African elephant conservation program of each ivory producing country by--

(1) publishing a notice in the Federal Register requesting submission of such information to the Secretary by all interested parties; and

(2) submitting a written request for such information through the Secretary of State to each ivory producing country.

(b) Review and determination.

(1) In general. The Secretary shall review the African elephant conservation program of each ivory producing country and, not later than one year after the date of the enactment of this title [enacted Oct. 7, 1988], shall issue and publish in the Federal Register a determination of whether or not the country meets the following criteria:

(A) The country is a party to CITES and adheres to the CITES Ivory Control System.

(B) The country's elephant conservation program is based on the best available information, and the country is making expeditious progress in compiling information on the elephant habitat condition and carrying capacity, total population and population trends, and the annual reproduction and mortality of the elephant populations within the country.

(C) The taking of elephants in the country is effectively controlled and monitored.

(D) The country's ivory quota is determined on the basis of information referred to in subparagraph (B) and reflects the amount of ivory which is confiscated or consumed domestically by the country.

(E) The country has not authorized or allowed the export of amounts of raw ivory which exceed its ivory quota under the CITES Ivory Control System.

(2) Delay in issuing determination. If the Secretary finds within one year after the date of the enactment of this title [enacted Oct. 7, 1988]that there is insufficient information upon which to make the determination under paragraph (1), the Secretary may delay issuing the determination until no later than December 31, 1989. The Secretary shall issue and publish in the Federal Register at the time of the finding a statement explaining the reasons for any such delay.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part II, § 2201, 102 Stat. 2318.)

§ 4222. Moratoria

(a) Ivory producing countries.

(1) In general. The Secretary shall establish a moratorium on the importation of raw and worked ivory from an ivory producing country immediately upon making a determination that the country does not meet all the criteria set forth in section 2201(b)(1) [16 USCS § 4221(b)(1)].

(2) Later establishment. With regard to any ivory producing country for which the Secretary has insufficient information to make a determination pursuant to section 2201(b) [16 USCS § 4221(b)], the Secretary shall establish a moratorium on the importation of raw and worked ivory from such country not later than January 1, 1990, unless, based on new information, the Secretary concludes before that date that the country meets all of the criteria set forth in section 2201(b)(1) [16 USCS § 4221(b)(1)].

(b) Intermediary countries. The Secretary shall establish a moratorium on the importation of raw and intermediary country immediately upon making a determination that the country--

(1) is not a party to CITES;

(2) does not adhere to the CITES Ivory Control System;

(3) imports raw ivory from a country that is not an ivory producing country;

(4) imports raw or worked ivory from a country that is not a party to CITES;

(5) imports raw or worked ivory that originates in an ivory producing country in violation of the laws of that ivory producing country;

(6) substantially increases its imports of raw or worked ivory from a country that is subject to a moratorium under this title during the first three months of that moratorium; or

(7) imports raw or worked ivory from a country that is subject to a moratorium under this title after the first three months of that moratorium, unless the ivory is imported by vessel during the first six months of that moratorium and is accompanied by shipping documents which show that it was exported before the establishment of the moratorium.

(c) Suspension of moratorium. The Secretary shall suspend a moratorium established under this section if, after notice and public comment, the Secretary determines that the reasons for establishing the moratorium no longer exist.

(d) Petition.

(1) In general. Any person may at any time submit a petition in writing requesting that the Secretary establish or suspend a moratorium under this section. Such a petition shall include such substantial information as may be necessary to demonstrate the need for the action requested by the petition.

(2) Consideration and ruling. The Secretary shall publish a notice of receipt of a petition under this subsection in the Federal Register and shall provide an opportunity for the public to comment on the petition. The Secretary shall rule on such petition not later than 90 days after the close of the public comment period.

(e) Sport-hunted trophies. Individuals may import sport-hunted elephant trophies that they have legally taken in an ivory producing country that has submitted an ivory quota. The Secretary shall not establish any moratorium under this section, pursuant to a petition or otherwise, which prohibits the importation into the United States of sport-hunted trophies from elephants that are legally taken by the importer or the importer's principal in an ivory producing country that has submitted an ivory quota.

(f) Confiscated ivory. Trade in raw or worked ivory that is confiscated by an ivory producing country or an intermediary country and is disposed of pursuant to the CITES Ivory Control System shall not be the sole cause for the establishment of a moratorium under this part if all proceeds from the disposal of the confiscated ivory are used solely to enhance wildlife conservation programs or conservation purposes of CITES. With respect to any country that was not a party to CITES at the time of such confiscation, this subsection shall not apply until such country develops appropriate measures to assure that persons with a history of illegal dealings in ivory shall not benefit from the disposal of confiscated ivory.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part II, § 2202, 102 Stat. 2318.)

§ 4223. Prohibited acts

Except as provided in section 2202(e) [16 USCS § 4222(e)], it is unlawful for any person--

(1) to import raw ivory from any country other than an ivory producing country;

(2) to export raw ivory from the United States;

(3) to import raw or worked ivory that was exported from an ivory producing country in violation of that country's

laws or of the CITES Ivory Control System;

(4) to import worked ivory, other than personal effects, from any country unless that country has certified that such ivory was derived from legal sources; or

(5) to import raw or worked ivory from a country for which a moratorium is in effect under section 2202 [16 USCS § 4222].

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part II, § 2203, 102 Stat. 2320.)

§ 4224. Penalties and enforcement

(a) Criminal violations. Whoever knowingly violates section 2203 [16 USCS § 4223] shall, upon conviction, be fined under title 18, United States Code, or imprisoned for not more than one year, or both.

(b) Civil violations. Whoever violates section 2203 [16 USCS § 4223] may be assessed a civil penalty by the Secretary of not more than $ 5,000 for each such violation.

(c) Procedures for assessment of civil penalty. Proceedings for the assessment of a civil penalty under this section shall be conducted in accordance with the procedures provided for in section 11(a) of the Endangered Species Act of 1973 (16 U.S.C. 1540(a)).

(d) Use of penalties. Subject to appropriations, penalties collected under this section may be used by the Secretary of the Treasury to pay rewards under section 2205 [16 USCS § 4225] and, to the extent not used to pay such rewards, shall be deposited by the Secretary of the Treasury into the Fund.

(e) Enforcement. The Secretary, the Secretary of the Treasury, and the Secretary of the department in which the Coast Guard is operating shall enforce this part [16 USCS §§ 4221 et seq.] in the same manner such Secretaries carry out enforcement activities under section 11(e) of the Endangered Species Act of 1973 (16 U.S.C. 1540(e)). Section 11(c) of the Endangered Species Act of 1973 (16 U.S.C. 1540(c)) shall apply to actions arising under this part [16 USCS §§ 4221 et seq.].

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part II, § 2204, 102 Stat. 2320.)

§ 4225. Rewards

(a) In general. Upon the recommendation of the Secretary, the Secretary of the Treasury may pay a reward to any person who furnishes information which leads to a civil penalty or a criminal conviction under this title.

(b) Amount. The amount of a reward under this section shall be equal to not more than one-half of any criminal or civil penalty or fine with respect to which the reward is paid, or $ 25,000, whichever is less.

(c) Limitation on eligibility. An officer or employee of the United States or of any State or local government who furnishes information or renders service in the performance of his or her official duties shall not be eligible for a reward under this section.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part II, § 2205, 102 Stat. 2320.)

§ 4241. Relationship to Endangered Species Act of 1973

The authority of the Secretary under this title is in addition to and shall not affect the authority of the Secretary under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) or diminish the Secretary's authority under the Lacey Act Amendments of 1981 (16 U.S.C. 3371 et seq.).

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part III, § 2302, 102 Stat. 2321.)

§ 4242. Certification under Pelly Amendment

If the Secretary finds in administering this title that a country does not adhere to the CITES Ivory Control System, that country is deemed, for purposes of section 8(a)(2) of the Act of August 27, 1954 (22 U.S.C. 1978), to be diminishing the effectiveness of an international program for endangered or threatened species.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part III, § 2303, 102 Stat. 2322.)

§ 4243. Effectiveness of CITES

Within 3 months after the completion of the 8th Conference of the Parties to CITES, the Secretary shall determine whether this title, together with the CITES Ivory Control System, has substantially stopped the importation of illegally harvested ivory into the United States. If the Secretary determines that the importation of illegally harvested ivory has not been substantially stopped, the Secretary shall recommend to the Congress amendments to this title or other actions that may be necessary to achieve the purposes of this title, including the establishment of a complete moratorium on the importation of elephant ivory into the United States.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part III, § 2304, 102 Stat. 2322.)

§ 4244. Definitions

In this title--

(1) the term "African elephant" means any animal of the species loxodonta africana;

(2) the term "CITES" means the Convention on the International Trade in Endangered Species of Wild Fauna and Flora;

(3) the term "CITES Ivory Control System" means the ivory quota and marking system established by CITES to curtail illegal trade in African elephant ivory;

(4) the term "Fund" means the African Elephant Conservation Fund established by section 2102 [16 USCS § 4212];

(5) the terms "import" and "importation" have the meanings such terms have in the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.);

(6) the term "intermediary country" means a country that exports raw or worked ivory that does not originate in that country;

(7) the term "ivory producing country" means any African country within which is located any part of the range of a population of African elephants;

(8) the term "ivory quota" means a quota submitted by an ivory producing country to the CITES Secretariat in accordance with the CITES Ivory Control System;

(9) the term "personal effects" means articles which are not intended for sale and are part of a shipment of the household effects of a person who is moving his or her residence to or from the United States, or are included in personal accompanying baggage;

(10) the term "raw ivory" means any African elephant tusk, and any piece thereof, the surface of which, polished

or unpolished, is unaltered or minimally carved;

(11) the term "Secretary" means the Secretary of the Interior;

(12) the term "United States" means the fifty States, the District of Columbia, Guam, the Commonwealth of the Northern Mariana Islands, the Commonwealth of Puerto Rico, and the territories and possessions of the United States; and

(13) the term "worked ivory" means any African elephant tusk, and any piece thereof, which is not raw ivory.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part III, § 2305, 102 Stat. 2322.)

§ 4245. Authorization of appropriations

There are authorized to be appropriated to the Fund and to the Secretary a total of not to exceed $ 5,000,000 for each of fiscal years 1992, 1993, 1994, 1995, 1996, 1997, and 1998 to carry out this title, to remain available until expended.

HISTORY: (Oct. 7, 1988, P.L. 100-478, Title II, Part III, § 2306, 102 Stat. 2323; Oct. 23, 1992, P.L. 102-440, Title III, § 302, 106 Stat. 2234.)

RANGE-WIDE PROJECTS

AECCG activities

Funding was provided to the African Elephant Conservation Coordinating Group to support development and maintenance of the African Elephant Project Database, to initiate the development of specific Elephant Conservation Plans for each range state, and to support regional meetings on elephant conservation in West and Central Africa. (FY92)

AESG activities

Funding was provided to the International Union for the Conservation of Nature to assist the African Elephant Specialist Group in various African elephant conservation activities and in its efforts to develop the most current data base for elephant conservation. (FY91, FY93, and FY96)

Awards Program

Funding was provided to the Southern Africa Wildlife Trust to support a meritorious service awards program to recognize wildlife rangers that have demonstrated bravery beyond the call of duty in African elephant anti-poaching enforcement operations. (FY93, FY94 and FY95)

CITES Law Enforcement Seminar

Funding was provided to the Convention on International Trade in Endangered Species Secretariat to assist in the development of a law enforcement seminar dealing specifically with African elephant anti-poaching and law enforcement issues. The seminar would develop a model program for use throughout Africa. (FY92)

EDG Activities

Two projects were funded in cooperation with the Environment & Development Group. The first, to coordinate a meeting on the African elephant in Botswana, and the second, to make an assessment of investments in elephant conservation. (FY94, FY95)

Nairobi Conference

In corporation with the European Economic Community and the Government of France, funding was provided to the United Nations Environmental Program to hold an international meeting in Nairobi, Kenya on elephant conservation focusing on the coordinated development of priority projects for elephant conservation and coordination of donor country bi-lateral project funding. (FY92)

Range States Meeting

Funding was provided to The World Conservation Union to conduct a meeting promoting dialogue between African countries on the conservation of the African elephant. (FY96)

TRAFFIC

Funding was provided to the TRAFFIC branch of the World Wildlife Fund for Nature for assistance in African elephant conservation related activites associated with the establishment of a TRAFFIC office for EAST/SOUTHERN Africa. (FY93 and FY97)

UNEP

Funding was provided to the United Nations Environment Programme for the development of the Lusaka Agreement on Co-operative Law Enforcement Operations directed at illegal trade in wild fauna and flora, with a focus on elephant ivory. (FY94)

Washington University

Funding was provided to conduct genetic research to explore the possibility of the existence of two separate species of African elephant and the management implications of such a possibility. (FY95)

WWF

Funding was provided to World Wide Fund for Nature to provide technical assistance on elephant conservation projects throughout the African elephant range states (FY95).

COUNTRY SPECIFIC PROJECTS

Botswana

Funding was provided in cooperation with the World Wildlife Fund for Nature and the Department of Wildlife and National Parks to assist in the development and implementation of an elephant conservation plan for Chobe National Park (FY91).

Burkina Faso

Funding was provided to the Director of National Parks and Reserves for elephant anti-poaching and management assistance (FY90).

Cameroon

Three projects were funded. One, in cooperation with the U.S. Embassy, provided equipment to the Department of Wildlife and National Parks for elephant anti-poaching operations in Waza National Park. The second in cooperation with the World Wildlife Fund for Nature provided funding to assess the impacts of crop raiding elephants, and the third, also in cooperation with the World Wide Fund for Nature provided funding for the monitoring of elephant populations (FY91, FY93 & FY95).

Central African Republic

Four projects were funded. Two were in cooperation with the World Wildlife Fund, to provide elephant anti-poaching equipment and assistance in Dzanga-Sangha Reserve, and elephant surveys in the Bangassou forests. A third, with the U.S. Embassy, was to facilitate outreach to rural communities on elephant conservation. The fourth project was in cooperation with the Wildlife Conservation Society for elephant research (FY90, FY93, FY94 & FY 96).

Congo

Funding was provided in cooperation with Wildlife Conservation Society to provide anti-poaching equipment and assistance in the Congo (FY93 & FY96).

Eritrea

Funding was provided for the protection of a remnant population of elephants recently discovered along the Eritrea/Ethiopia border in cooperation with the State Department (FY96).

Gabon

Funding was provided in cooperation with the World Wildlife Fund and the Department of Wildlife and Hunting for anti-poaching assistance in the Petit Loango Faunal Reserve, and the Gamba Protected Area (FY90 & FY93).

Ghana

Funding was provided in cooperation with the Wildlife Conservation Society to train Ghanian wildlife officers in elephant biology and ecology (FY95).

Kenya

Two projects were funded. The first provided funding for the compilation of a comprehensive reference library on the African elephant, in cooperation with UNEP. The second provided funding for improving techniques in African elephant applied research and monitoring, in cooperation with the World Wide Fund for Nature (FY94 & FY96).

Malawi

Three projects were funded in Malawi with the Department of National Parks, Wildlife and Tourism. One project conducted a status survey of elephants in Malawi's protected areas, a second provided emergency assistance for water due to the drought conditions, and a third provided assistance to the CITES Standing Committee (FY90, FY92 & FY93).

Mali

One project was funded in cooperation with the State Department to manage the elephants in the Gourma region (FY95).

Mozambique

Funding was provided in cooperation with the Environmental Investigation Agency and the World Bank for the rehabilitation of the Maputo Elephant Reserve (FY95).

Namibia

Two projects were funded. One was in cooperation with the World Wildlife Fund, to respond to an emergency disease outbreak in the desert elephant due to the drought. The second was in cooperation with the Namibia Nature Foundation to coordinate transborder aerial elephant status surveys (FY92 & FY93).

Senegal

A cooperative project was funded with Senegal National Parks Service and the Friends of Animals to provide anti-poaching assistance to Niokolo-Koba National Park, which contains the western most remaining elephant population on the continent (FY93 & FY95).

Tanzania

Seven projects were funded in Tanzania in cooperation with the Tanzania Department of Wildlife. One assisted the Department in the administration of the Eastern Africa Regional Meeting on elephant management and conservation. The second provided anti-poaching equipment and assistance to the Department of Wildlife in cooperation with the African Safari Club of Washington, D.C.. The third provided excess U.S. military vehicles to the Department for elephant anti-poaching operations in cooperation with the Friends of Animals. The fourth was a cooperative project with the Friends of Conservation to provide security assistance and to conduct status surveys of elephants in the Serengeti Ecosystem. The fifth was a project with Safari Club International supporting a game scout quota monitoring program. The sixth was a project with the Center for Wildlife Conservation assessing long term impacts of elephant poaching. The seventh project was with Safari Club International to conduct a country-wide survey of the elephant population (FY91-93, FY95, & FY97).

Zambia

Two projects were funded in Zambia. One was a cooperative project with the World Wildlife Fund and the Zambia Anti-Corruption Commission to establish a Species Protection Unit to assist in elephant anti-poaching efforts. The second was a cooperative project with the African Safari Club of Washington, D.C. and the Minister of Tourism and Natural Resources to provide elephant anti-poaching equipment and assistance to their Remote Game Scout Program (FY90, FY91 & FY95).

Zimbabwe

Five projects were funded in Zimbabwe. Two were in cooperation with the African Safari Club of Washington, D.C. and the Department of National Parks and Wildlife, for elephant anti-poaching equipment and assistance in the Lower Zambezi Valley and, for an intelligence liason support project. The third, in cooperation with the American Embassy provided emergency assistance to the Department to assist in the development of techniques for translocation of elephants. The fourth was a project with Safari Club International to provide training to rural communities in the setting and monitoring of hunting quotas. The fifth was a project with the University of Cambridge to study the ecology and deterrence of crop-raiding elephants. (FY91, FY92, & FY95)

RETURNS FROM TOURIST HUNTING IN TANZANIA
Paper for presentation by PAWM to the Tanzania Tourist Hunting Workshop, Dar es Salaam, 27-29 July 1993

Introduction

The tourist hunting industry in Tanzania has been through a period of change following its re-opening in 1978. Now under the management of the Department of Wildlife, the process of encouraging private companies that was initiated by the parastatal, the Tanzania Wildlife Corporation (TAWICO) has continued. Private companies now undertake most of the hunting, with TAWICO competing as if it were a private outfitter. Since the re opening of hunting, the number of outfitters has grown from only TAWICO in 1978, to nine companies in 1984, to 31 in 1993. During this period of growth in the industry, the Department of Wildlife has taken steps to increase the revenue earned by the tourist hunting industry. Firstly it has levied a variety of fees other than the game fee which accrue to various Government departments. Secondly, it has required that outfitters adopt minimum daily rates and that outfitters bank a proportion of their money in Tanzania. This paper examines the performance of the tourist hunting industry during the period 1988-92, at a time when the numbers of outfitters is growing rapidly. This paper aims to provide some of the background information to permit effective planning of the tourist hunting industry in such a way that it is carried out at sustainable levels, yet maximises economic returns to Tanzania.

Methods

The methods used to collect the data described in this paper were to computerise all the quota information and game hunting permits for the 1988 to 1992/93 hunting seasons. This required the entry of data from a total of 6890 completed game hunting permits for these five seasons from the files of the Department of Wildlife in Dar es Salaam and Arusha (Table 1). The whereabouts of a total of 236 game hunting permits that were issued for this period was not determined. A number of permits related to safaris that were canceled. Therefore, the data used in this study represents minimum levels of offtake and potential revenue, based on a total of 5414 game hunting permits (Table 1).

Table 1. A breakdown of the data collected for this study for the 1988-1992/93 seasons

Factors	Numbers
Total No Permits 1988-92/93	7126
Unaccounted for GHPs	236
Computerised GHPs	6890
GHPs relating to canceled safaris	1476
Total GHPs used for the analysis	5414

These data have several disadvantages, as follows:
1) several permits can be issued for the same safari, and therefore there is not one permit per safari. This has required the consolidation of the data from several permits into single safari units.
2) the permit is issued for the various blocks in which the client is expected to hunt. While the actual utilisation in terms of animals shot or wounded is noted down on the permits, it has not been possible in this study to determine how long each client spent in which particular blocks. Accordingly, it has only been possible to attribute the game fees fairly precisely to individual blocks. However, it has not been possible to attribute the range of other fees such as the conservation fee (which is charged on a daily basis) and the daily rate charged by the outfitter precisely to each block. Where necessary this has only been attempted by attributing the appropriate fees and daily rates in the same proportion as the game fees earned by each block. It is appreciated that this is not perfect, but to do this task in any other way would have been even more time-consuming.
3) the permit does note whether or not an observer accompanies the hunter, and this information is filed separately. The records were more complete in one hunting office than another. Accordingly, observer fees were applied to the less complete office's records in the same proportion in relation to numbers of safari days as were those for the more complete offices records.
4) the permits do not contain information on whether or not the safari is being conducted on the basis of 2 clients on 1 hunter, 2 on 2 and so on. Without requesting access to the records of all the outfitters, it would not have been possible to attribute the amount earned by the outfitters through their daily rate charge and accompanying person charge. Given that there is considerable variation in the fees charged by outfitters, a flat daily rate of US$850 as charged by TAWICO has been applied to the data on numbers of safari days to calculate potential earnings by the outfitters.

All the above factors lead to the conclusion that all the data presented in this paper are conservative estimates of the potential extent of Tanzania's tourist hunting industry during the period 1988-92.

5) the use of the game hunting permits only allows an assessment of the potential earnings of tourist hunting industry within the limits set out above. The permits do not allow an assessment of what was actually earned by the tourist hunting industry. Compilation of actual earnings would require access to accounts and receipts.

Numbers and types of safaris

Tanzania offers a variety of safari types ranging from the 7-day to the 21-day. During the period 1988-92/93 the total numbers of hunting safaris made by international visitors to Tanzania, increased steadily from just over 200 safaris in 1988 to around 500 in 1992/93 (Figure 1). The only noticeable drop in the trend of safaris was in 1991 during the year of the Gulf War. Safari numbers picked up again in 1992. Of the safari types taken up, the 21-day safari predominates throughout the period of 1988-92, comprising 71% of all safaris sold (Figure 1). Other safari lengths were taken up much less commonly, with 18% of total safaris

sold as 7-days, 4% as 14-days, and 7% as 16-days (Figure 1). The high proportion of 21-day safaris results in a large number of hunting days being spent in Tanzania, and the total has risen steadily from around 4000 hunting days in 1988 to 10,000 in 1992/93 (Table 2; Figure 2).

Table 2. The growth of tourist hunting in Tanzania expressed as the number of hunting days, the game and other fees earned, and the daily rate, all summed to give the total potential earnings of the industry from 1988-92/93. The estimates of the daily rate for 1988 are not divided because the requirement that 55% of the daily rate be banked in Tanzania did not come into force until 1989.

Year	Hunting Days	Game Fees	Other Fees	Daily Rate (55%)	Daily Rate (45%)	Total Earnings
1988	4028	$1,252,386	$0	N/A	N/A	$4,676,186
1989	9352	$2,198,506	$122,600	$4,372,060	$3,577,140	$10,270,306
1990	8983	$2,342,390	$196,700	$4,199,553	$3,435,998	$10,174,641
1991	6892	$2,584,455	$1,219,100	$3,222,010	$2,636,190	$9,661,755
1992	10141	$3,600,260	$1,740,350	$4,740,918	$3,878,933	$13,960,461

Animals Killed by Tourist Hunters

A wide range of species are available to the tourist hunter in Tanzania. As the numbers of tourist hunters has increased over the period of 1988-92, so too have the numbers of most species of animals killed (Table 3). The exception are numbers of elephants killed, which have declined along with their population size and alteration in age and sex structure following the years of illegal exploitation for ivory.

Table 3. Total numbers of various species shot by tourist hunters throughout Tanzania during 1988-92/93. *It should be noted that the total no. of animals refers to all animals shot including those not listed in the table.

Species	1988	1989	1990	1991	1992
Elephant	59	50	15	12	18
Lion	106	204	210	165	222
Leopard	98	194	214	145	214
Greater kudu	55	80	94	67	87
Lesser kudu	33	44	55	53	80
Gerenuk	21	41	53	59	89
Oryx	49	72	83	71	111
Sable	86	127	141	126	127
Roan	37	45	52	60	61
Buffalo	269	502	544	459	736
Zebra	216	431	463	279	459
Total animals*	2865	5414	6051	7110	7034

The important species, both in terms of their close to exclusive availability for tourist hunters in Tanzania (for example gerenuk, lesser kudu and oryx), together

with species that are of most general importance to hunting safaris in Africa, have been assessed for their contribution to game fees earned for Tanzania during the period 1988-92 (Table 4). As expected the elephant has made increasingly less of a proportional contribution to the game fees. There is little clear evidence of a trend of increase in the importance of the remaining species to the overall levels of fees, except possibly for the gerenuk, buffalo and zebra. The importance of the large cats and buffalo to the game fees is clear (Table 4).

Table 4. The percentage contribution of a number of species to total game fees in the period 1988-1992/93

Species	1988	1989	1990	1991	1992
Elephant	11%	6%	2%	2%	2%
Lion	12%	13%	13%	13%	12%
Leopard	11%	12%	13%	11%	12%
Greater kudu	4%	3%	3%	3%	3%
Lesser kudu	2%	2%	2%	3%	3%
Gerenuk	1.5%	1.7%	2%	3%	3%
Oryx	2%	1.8%	2%	2%	3%
Sable	6%	5%	5%	6%	4%
Roan	2%	1.2%	1.4%	2%	1.5%
Buffalo	9%	9%	10%	11%	12%
Zebra	6%	7%	7%	6%	8%

Because of the importance of certain species to tourist hunting in Tanzania, an assessment is made in Table 5 of the numbers of requests made by clients in relation to the overall success rate at shooting these trophies. These data show clearly that clients are making an increasing number of requests to shoot all these species, with the exception of the elephant, for which the number of requests has declined. Furthermore, those requests that are made for an elephant are not as easily fulfilled as the requests for other species. This is unsurprising in the light of what is known about the population decline of the elephant. For the remaining species, clients stand a good chance of obtaining a trophy even though the number of requests have increased over this period. Providing these trophies have been shot in the place declared (that is to say, for example, that lions are not being attracted out of national parks) and that trophy size and quality is not declining, then harvest levels would at present appear sustainable.

Table 5. The numbers of requests for certain key species and the overall percentage success at fulfilling those requests during 1988-1992/93

Species	1988	1989	1990	1991	1992
Elephant	117: 50%	215: 23%	63: 23%	49: 24%	63: 28%
Lion	102: 100%	366: 56%	366: 57%	344: 48%	464: 48%
Leopard	109: 90%	372: 52%	374: 57%	325: 45%	426: 50%
Gerenuk	20: 100%	95: 43%	87: 61%	75: 79%	114: 78%
Oryx	33: 100%	119: 60%	121: 68%	98: 72%	145: 76%
Buffalo	287: 93%	852: 59%	811: 67%	881: 52%	1357: 54%

5

The increase in the number of clients and hunting days in Tanzania during 1988-92 (Figure 1; Table 2) and of the numbers of species shot (Table 3) raises the question of which areas of Tanzania are providing most returns and buffering most of the increase in terms of species shot. A geographically-based analysis has been undertaken of the blocks in which game fees are earned from 1988 to 1992/93 in Figures 3a to 3e. This analysis shows a high revenue earning density in 1988 in the south-east of the Selous GR, in Ikorongo & Grumeti GCA and Maswa GR and in some of the Masailand hunting blocks (Figure 3a). The build-up in the revenue density throughout the period 1988-1992/93 (Figures 3b to 3e) is most evident also in the south-east of Selous, in northern Masailand, in Loliondo GCA and Maswa GR, in Rungwa & Kizigo GRs and in parts of Moyowosi & Kigosi GRs (Figure 3e). These figures are very useful in showing clearly where most revenue is earned and the potential of different areas for tourist hunting and for future community-conservation schemes.

Revenue Potential of Tourist Hunting

In a previous paper it was noted that revenue earned directly from tourist hunting consists of two main components. The first component are a range of fees charged by the Department of Wildlife on behalf of the Government. The second component comprises the daily rate and other charges made by the outfitter. Each of these components will be considered in turn, in order to build up as complete a picture as possible of the revenue-earning potential of tourist hunting during 1988-92.

Fees

Fees charged by the Department of Wildlife consist of game fees, observer fees, conservation fees, permit fees and trophy handling fees. The fees were introduced at different times during the 1988-92 period, and game fees have increased once during this period. Therefore, an assessment of the potential fees earned from tourist hunting requires a variable spreadsheet for different years. Through the various fee structures adopted over this period, there has been a large increase in potential fees earned by the tourist hunting industry from $1.1 million in 1988 to $5.3 million for the 1992/93 season (Figure 4). Despite the introduction of new fees, the game fee has remained the most important in terms of its share of the potential total fees. In 1992, for example, game fees had the potential to earn $3.6 million or 67% of the total fees possible. The next important was the conservation fee which had a potential of $1.0 million or 19% of the total possible. Permit, observer and trophy handling fees brought in smaller potential amounts, comprising 6%, 4% and 3% of the total possible (Table 6; Figure 4).

The distribution of the fees charged by the Department of Wildlife has also changed during the 1988-92 period, in line with Government policies to provide Game Reserves with retention schemes and local people with revenue from tourist hunting. From 1988 to 1991, the game fee was divided in the fixed proportion of 25% to the Tanzania Wildlife Protection Fund (TWPF) and 75% to Treasury. From the 1992 hunting season, the game fee is being split on four ways, as discussed in an earlier

paper. A total of 25% of the game fee still goes to TWPF, while 28.1% goes to Treasury, and 37.5% will be retained by the Game Reserve. At present only Selous has a formal agreement by Treasury to operate a retention scheme, but given that a case is being made for other Game Reserves, the same formula has been applied in this analysis to all game fees for 1992. Since their introduction, all of the observer, conservation, permit and trophy handling fees accrue to TWPF. Accordingly, TWPF has built up the capacity to accrue an increasingly large share of the potential fees earned from tourist hunting, amounting to $2.6 million from the 1992 hunting season, or 49% of the total fees possible (Table 6; Figure 5). Retention should be allocated around $1.3 million or 25% of the total possible. For the specific example of the only agreed retention scheme, the potential amount the Selous should earn for game fees accrued within its hunting blocks is $325,000 (Figure 5).

Table 6. An assessment of the potential revenue from tourist hunting from different fees and of the distribution of such fees to different accounts.

Fee	1988	1989	1990	1991	1992
Conservation				$689,200	$1,014,100
Observer		$122,600	$196,700	$199,100	$239,600
Game	$1,252,386	$2,198,506	$2,342,390	$2,584,455	$3,600,260
Trophy Handling				$109,100	$160,100
Permit				$221,700	$326,550
Beneficiary	**1988**	**1989**	**1990**	**1991**	**1992**
Treasury	$939,290	$1,648,880	$1,756,793	$1,938,341	$1,011,673
TWPF	$313,097	$672,227	$782,298	$1,865,214	$2,640,415
Retention					$1,350,098
District Councils					$338,424

Daily rates

Outfitters are free to charge their own daily rate with the exception of the recently imposed restriction of a minimum daily rate of $850. Outfitters in Tanzania have been shown in a previous paper to adopt a variety of daily rates according to safari length and type. As much of the information on safari type was not available on hunting permits, the approach of taking a single daily rate was adopted in order to give an impression of the total value of the tourist hunting industry to Tanzania. Using the figures on the number of hunting days, the increase in the potential earnings from the daily rate are shown in Table 2.

Total potential earnings

A conservative estimate of the total value of the tourist hunting industry to Tanzania can be made by adding the potential fees paid to the estimated daily rates

(Table 2). This suggests that the tourist hunting industry in Tanzania has shown a period of sustained growth, increasing in potential value from $4.6 million to $13.9 million during the period 1988-92 (Figure 2). Given that outfitters have been obliged only to bank 55% of the daily rate in Tanzania since 1989, potential earnings actually accruing to Tanzania can be estimated using the appropriate figure in Table 2. Accordingly, the potential of tourist hunting has increased in terms of the money that should have been banked in Tanzania from $6.7 million in 1989 to $10.1 million in 1992.

It should again be noted that these are a conservative estimate of the potential earnings of the industry for they do not include various fee charges, and any multiplier effects. For example in terms of fees, the police charge $100 per weapon registered with them by a tourist hunter. Another example of a fee not included are those paid voluntarily by tourist hunters participating in the Cullman Reward Scheme around Maswa Game Reserve and other hunting areas. The importance of such payments cannot be over-stressed given that they are directly benefiting individuals in a local community. Multiplier effects may also be very important, for example the revenues received by international airlines and local air charter companies, charges paid by clients staying in hotels at the beginning and end of their safari, souvenirs, tips to camp and other staff. Despite their incomplete nature, however, the figures certainly provide a guide to the sustained growth shown by, and the potential value of, tourist hunting to Tanzania's wildlife economy.

Performance by individual outfitters

The total potential earnings made by Tanzania are of course made up of the sum of the performances of individual outfitters. As already seen in an earlier paper, companies have held different numbers of blocks for different lengths of time and have had varying success at holding the same blocks for a five year period. Their hunting performance shows similar variation in their economic return to Tanzania (Figure 7). This analysis shows the performance in terms of the mean game fees potentially accrued by each outfitter that has been allocated blocks in Tanzania since 1988. Three outfitters have been allocated blocks but have not succeeded in making any returns through utilisation, while some companies have consistently brought in returns of $40,000 per block allocated in terms of game fees. The individual variation in terms of game fees earned per block are shown by the bars indicating standard deviations (Figure 7). Clearly some outfitters are able to earn around $100,000 in certain blocks in individual years.

An outfitter's performance must clearly be part of an assessment of whether or not that outfitter should retain the blocks allocated. The policy used to date by the Department of Wildlife has been that of applying a criteria of 40% utilisation of the quota. This criterion of course requires that the quota has been set right in the first place and reflects what it is that clients coming to Tanzania are wishing to shoot. Given that performance in terms of game (and indeed other fees earned) may be a better indicator and more independent indicator of performance, it is interesting to note that there is a direct relationship between the mean performance of companies

in terms of game fees earned per block and their mean utilisation per block over the period 1988-1992/93 (Figure 8). However, it is less clear whether the 40% utilisation criterion has been successfully applied to outfitters in determining whether or not they retain the same blocks (Figure 9). This analysis shows the success of the 17 outfitters who have hunted since 1988 at retaining the same blocks and their mean quota utilisation over the 5 year period. It is clear that some companies with good utilisation are not very successful at retaining the same blocks, while other outfitters with poor utilisation are successful at retaining their blocks. This analysis suggests that improvements are necessary is recognising companies which perform well in terms of retaining the same blocks for long periods of tenure (Figure 9).

Conclusions

This paper has shown that tourist hunting is a growing and thriving industry that should be making good economic returns to Tanzania. The data presented here show some of the important parameters under which the Tanzanian tourist hunting industry develops operates and provides some of the necessary data in planning for its future, both in terms of offtake of animals, maximising earnings through different safari lengths, ensuring adequate economic returns are actually made to Tanzania, and rewarding outfitters who perform well.

Trophy. *Sustainable use of wildlife, say southern African nations, turns animals that are a dangerous nuisance into valuable assets*

Save the elephants: Start shooting them

Animal lovers hail the ivory ban. Many African nations hate it—and say it hurts wildlife

The elephants from Gonarezhou National Park leveled the Save River soon after sunup and bore down on the village of Mahenya. The alarm was sounded, but frenzied shouts and the banging of pots and pans failed, as usual, to scare them away. It took the pachyderms only minutes to devour a field of ripening maize that Pioneus Ukuri had cleared from the thin, dessicated soil of this remote, arid corner of southeastern Zimbabwe. "Not long ago, lions came in the night and killed 14 goats," says the grizzled subsistence farmer, more enraged to than angered by his loss. "Three women were hurt by lion and buffalo; one man was killed by an elephant. Maybe I am not so unlucky."

Just four years ago, marauding wildlife would have spurred Ukuri and his fellow villagers to kill the animals with poison and spears. Today, the people in Mahenya and in scores of other Zimbabwean villages tolerate the crop losses, the property damage and the danger, for one reason. They—not the central government—now own the animals in their district. They profit from them. And so they protect them.

There is a growing belief among conservationists that if Africa's big-game animals are to survive—not just inside national parks but outside, where most of them live—people who share the land must benefit. In programs like Zimbabwe's CAMPFIRE, a widely copied model for other African nations, villagers are allowed, under strict controls, to sell permits to big-game trophy hunters and to cull animals for hides, horns and meat.

Sustainable-harvest programs could soon include a return to the ivory trade—the most controversial and most profitable aspect of consumptive wildlife commerce. At least 11 southern African nations, including South Africa, Zimbabwe, Malawi, Namibia, Botswana and Tanzania, either want to resume—or would support—limited trade in ivory if certain conditions can be met. These include strict measures to prevent poaching and stringent safeguards to block black-market ivory from entering the legal pipeline.

Prime Minister Ryutaro Hashimoto of Japan, a major ivory-consumer nation, said in October he would "positively consider" supporting a renewed link trade. Last week, officials from most of Africa's 35 elephant-range nations meeting in Senegal found that poaching, illegal trade and human conflicts were increasing and agreed "to reconsider the elephant as a renewable natural resource."

Enemy No. 1. African antipathy toward elephants is rooted in the animals' destructive behavior. As the continent's growing human populations gobble up more wildlife habitat, expanding elephant herds compete with cattle farmers for forage and water, and crop fields and granaries, destroy orchards and forests, damage water holes and dams, wreck buildings and terrorize rural villagers.

"Elephants are the darlings of the Western world, but they are enemy No. 1 in Kenya," says David Western, head of the Kenya Wildlife Service. He recently supported a return to the ivory

CAMPFIRE story. *Free meal by big game hunters the American Derek Bardsley (left) to shoot a crop-raiding elephant in Zimbabwe are shared by the community, which also receives the hide and meat.*

trade with other countries. "The African farmer's enmity toward elephants is as visceral as Western snowboarders in pursuit," he says. In the past six years, he points out, close to 300 Kenyans have been killed by wildlife, mostly by elephants but also by lions, buffaloes, hippos, crocodiles and baboons.

Burgeoning elephant herds in southern and eastern Africa are damaging not only wildlife preserves like Kenya's Amboseli National Park but entire countries. Consider Botswana, a nation roughly the size of Texas. "We have 80,000 in our tiny country," says Ketumile Masire, Botswana's president, adding wryly: "That's elephants, not chickens. Many are starving and in some areas destroying their own habitat. We fear they will do irreparable harm to the economy. We would like to reduce our herds and market the ivory."

Feed-raising tool. Legal export sales of elephant tusks were outlawed in 1989 by the member countries of CITES, the United Nations Convention on International Trade in Endangered Species. The ban was a response to rampant poaching—fostered by lax protection and corruption—that had wiped out roughly half of Africa's 1.3 million elephants in the previous decade.

The CITES prohibition was orchestrated by Western nations and their powerful animal-protection groups. They declared the African elephant's very survival to be at stake—ignoring the fact that 600,000 animals is hardly an endangered population. And it didn't hurt that images of dead elephants became set of festive membership and fund-raising tool for the animal groups. In the wake of righteous enthusiasm for the ban, they and Western governments promised tens of millions of dollars to African nations to make up for their lost legal ivory revenues. Only a fraction of that money ever materialized.

The ban worked and the slaughter has been dramatically reduced, though it has hardly ended. Some 200 elephant carcasses, tusks removed, were found in September in the Congo, reflecting the continued demand for ivory. Southern African nations that protected their elephant populations during the heavy poaching era and now are overrun by the pachyderms want the ban lifted alto-

gether or modified to allow limited ivory exports from countries with large herds.

The highly charged issue will dominate the agenda next June when the 133 member nations of CITES meet for their biennial conference. The meeting will be held, coincidentally, in Zimbabwe, one of Africa's strongest advocates for resumed ivory trading. With about 70,000 elephants – more than twice the carrying capacity in a country the size of California – and with 45 tons of ivory locked in a government warehouse, Zimbabwe badly wants to find a market for its trove of white gold.

Estimates of stockpiled ivory across the continent range from 500 to 600 tons, perhaps more. For nations mired in poverty, that represents a vast, untapped source of revenue that could underwrite rural development, habitat acquisition and wildlife protection. It also could be siphoned off into the pockets of corrupt bureaucrats. Thus one idea being floated by the World Wildlife Fund is a debt-for-ivory swap in which Western governments would write off a portion of a nation's indebtedness in return for destruction of its stockpiled tusks.

Western animal-protection reps are preparing to mount ...sive opposition to renewed ivory trading. The Humane Society of the United States, which has launched a $2.5 million elephant contraception experiment in South Africa's Kruger National Park, says that culling and hunting are unnecessary. Believes the society's John Grandy: "Birth control is a humane alternative for African nations who make money from devastating their wildlife, a way for them to embrace compassion."

Exasperation. This sentiment infuriates Africans eager to use their wildlife like any other natural resource, be it timber, copper or diamonds. "Why should our people beg and starve while we are sitting on a stack of ivory worth tens of millions of dollars?" asks Graham Child, an internationally known wildlife scientist in Zimbabwe. Says Botswanan President Masire: "It is environmental imperialism. Let us manage our own resources without interference from the West."

The same ecoimperialism charge is leveled against the United States by Botswana, Zimbabwe, Malawi and Namibia in a related controversy. Together with the 35,000-member Safari Club International, the world's largest big-game-hunting organization, the four southern African nations have petitioned the United States to amend its Endangered Species Act. The law forbids American hunters to bring home trophies of animals the ESA deems threatened or endangered – even though CITES allows limited hunting of some of these species in specific countries.

Big-game hunters typically spend between $20,000 and $60,000 for a safari. Denying them trophy import permits, they argue, is a restraint of trade that costs African nations millions of dollars a year. In South Africa's Pilanesberg National Park not long ago, for example, three very rare black rhinoceros bulls, past breeding age, were approaching the end. SCI members offered up to $250,000 each to shoot them and bring home the trophies. The law, not common sense, prevailed, and the rhinos ended up as hyena food. Likewise, hundreds of cheetahs are killed each year across southern Africa as livestock pests. SCI lobbyist and former Montana congressman Ron Marlenee says the U.S. species protection act actually hampers efforts to provide incentives to rural Africans to halt poaching, to stop converting prime wildlife habitat to livestock pasture and to quit killing the sleek cats that prey on their animals. "If cheetahs killed as pests were instead worth $5,000 apiece to local people, they'd feed their cattle and hogs to them," Marlenee argues.

Some prominent conservationists, like elephant researcher Cynthia Moss, argue that Africa's big game should be protected for its intrinsic worth. Others insist that wildlife must pay its way if it is to survive outside zoos and safari parks. "The protectionist mentality is irrelevant today," believes Hector Magome, manager of planning and development for the South Africa Parks Board. "Wildlife must be used to reduce poverty; otherwise we will lose the parks." The government, he notes, is under tremendous pressure from land-poor South Africans to carve up New Jersey-size Kruger National Park for farms and homesteads. Wildlife officials in southern Africa calculate that managing wildlife on marginal lands can produce twice as much revenue as cattle ranching.

Programs like Zimbabwe's CAMPFIRE, which began in earnest about eight years ago, are a promising start. CAMPFIRE generates $2.7 million a year, 90 percent of that from sport hunting. The money is shared by about 600,000 people living on communal lands.

CAMPFIRE is dependent on a 10-year, $17 million U.S. Agency for International Development grant for administration, training and infrastructure that began in 1990. Though emulated in other countries, the program has recently been tainted by charges of poor management and corruption in some areas of Zimbabwe. Sustainable-use proponents consider it a model for community development despite the blemishes. Opponents say CAMPFIRE is nothing more than U.S. tax dollars subsidizing wealthy trophy hunters.

For Phineas Ukeri and his fellow villagers, such controversy is an abstraction. They point out that last year, the 661 households in Mahenya each received a cash payout of 240 Zimbabwean dollars. That's about $21, a significant sum in a subsistence economy in which $100 to $150 is the average annual household income. Revenues from the program, which began in Mahenya in 1992, also have purchased the village two grinding mills and a water line and have built a small school.

CAMPFIRE has brought the villagers of Mahenya full circle. Davison Maimbiri says his people once hated nearby Gonarezhou Park because they were forced off the land 30 years ago to create the preserve and were forbidden to hunt the animals that had sustained them for centuries. "Now we use the skills and knowledge of our elders to conserve wildlife as they once did," he says. "Once again, animals are part of our livelihood." ■

Rampage. *A baobab tree destroyed by elephants*

By Michael Satchell in Kenya, Zimbabwe and South Africa

WORLD REPORT

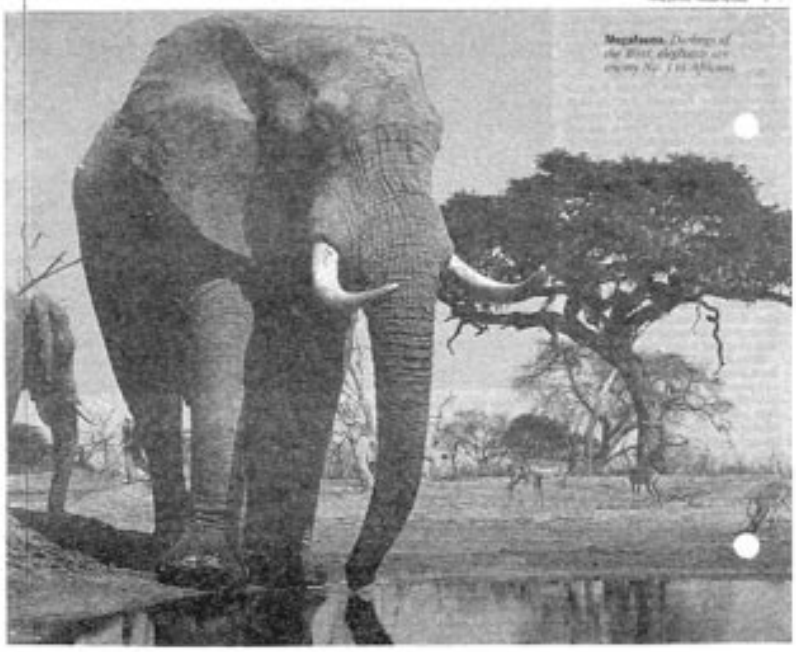
Killing with kindness

Preserving wildlife has been a moral and practical disaster for the developing world. The paradoxical solution: Use it or lose it

Traditional recipe for creating a picture-book African wilderness: Massacre the natives; introduce smallpox to kill off some more; let tsetse fly spread and wipe out the cattle; declare what's left a park; shoot any poachers. An image of teeming wildlands in far-off tropic climes has long seized the imaginations of affluent nature lovers in affluent lands; with the ascendancy of global biodiversity as issue No. 1 on the environmental agenda, safeguarding that image has become a major focus of fund-raising campaigns and legal initiatives.

But it is an image awash in ironies, not least that a land teeming with wildlife, untrammeled by man, is a modern colonial invention—an anachronism created by brutal force and alien to anything nature had known for thousands of years. The famous game parks of Kenya, for one, arose on the centuries-old homelands of the cattle-herding Masai after they were weakened by disease and driven out by colonial law.

As a policy, preservation is a deeply flawed anachronism at that. In parks and reserves around the world, scrupulously



Megafauna. *Darlings of the West, elephants are enemy No. 1 in Africa.*

protected herds of what wildlife managers wearily refer to as "charismatic megafauna" have destroyed woodlands and the habitats of countless other species. Elephant herds in Kenya's Amboseli National Park have wiped out about 90 percent of the woods; a dozen wildlife species including giraffe, vervet monkeys and impala have vanished ("Save the Elephants: Shoot Them," Page 50).

More urgently, preservation has been a moral and practical disaster. The countries that have the misfortune to harbor the world's biodiversity are the poorest on the planet, facing the greatest population pressures. Half of sub-Saharan Africa's 372 million people live on $1-a-day "absolute poverty," according to the World Bank; the continent's population is expected to double by 2025. Science is the 20 million population of the Philippines, which has already stripped and devastated the coral reefs to feed its impoverished multitudes ("Reef Rich? Reef Dynamite?" Page 56). Developing nations, says Mostafa Tolba, former head of the United Nations Environment Program, believe that "the rich are more interested in making the Third World into a natural history museum than they are in filling a billion of its people." The "preservation" wished and even shot in the name of biodiversity are as often as not deprive villagers starving to death. Declaring land off-limits to hungry people is not a strategy for saving nature or feeding people.

Worst of all may be the utter futility of trying to save wildlife by preventing its use with absolute bans. The costs of effective antipoaching efforts in African parks have been enormous, more than $500 per square mile per year. Most African countries have been able to afford a fifth that at most.

Make it pay. Killing animals to save them smacks paradoxical, even cynical and perverse. Yet economics and history offer a strong brief for "sustainable use." In the United States, the market for sport hunting has been a spectacular success in saving targeted species. There were fewer than 5,000 pronghorn antelope in 1908; there are over a million today. Wild turkeys were virtually extinct in 1890; today there are 4 million. And a growing number of wildlife officials and environmental groups worldwide are taking heart in the practical success that regulated markets for wildlife can achieve in even the poorest countries facing the greatest environmental pressures. Where wildlife have commercial value to the people who share the land with them, a local constituency is created with a stake in the animals' continued existence. Preservation by contrast is a never-ending battle of enforcement backed by punitive costs.

The U.S. government this year is spending $630 million in 60 countries on sustainable management programs designed to make it pay for local people to use forests, forests, fresh water and agriculture in ways that protect them for the future. Environmental groups that continue to fight for protection argue that "ecotourism" is a better way to make wildlife pay than selling hides and hunting rights. But much wildlife habitat is seriously challenged bush or semiarid savanna, ridden with malaria and political upheaval and lacking the expensive infrastructure of airports, roads and lodges that tourists demand. "Tourism is no panacea," says Jon Hutton of the Africa Resources Trust, a private group that promotes sustainable wildlife use. "Fancy a holiday in Rwanda?"

The best hope for wildlife is to use it. ■

By Stephen Budiansky

Coral. *Reefs are a wellspring of biodiversity—and a major source of food*

INTEGRATING CONSERVATION AND DEVELOPMENT FOR A SUSTAINABLE FUTURE IN ZIMBABWE

A Response by the CAMPFIRE Collaborative Group (CCG) to the Humane Society of the United States (HSUS) pamphlet entitled:

"10 Reasons Why the US Government Should Stop Funding Zimbabwe's Pro-Ivory Trade Lobby"

SUMMARY

PRINCIPLES

The HSUS pamphlet factually misrepresents CAMPFIRE (the Communal Areas Management Programme for Indigenous Resources). We believe this to be the result of a deep-seated ethical divide between animal rights and contemporary practices in conservation and rural development. HSUS's underlying ethic is incompatible with Zimbabwe's Wildlife Policy, CAMPFIRE, and the Convention on Biological Diversity (CBD).

Sustainable use and the equitable sharing of benefits therefrom are the second and third of the CBD's principal objectives. In line with this Convention, CAMPFIRE has the following aims:

- To initiate a program for the long-term development, management and sustainable utilization of natural resources in communal areas;
- To achieve management of resources by placing custody and responsibility with the resident communities;
- To allow communities to benefit directly from the exploitation of natural resources within communal areas, and
- To establish the administrative and institutional structures necessary to make the program work. (Martin 1986:12)

In contrast, HSUS president Paul Irwin states:

> *"Even in theory, 'sustainable use' is unacceptable to many people because it absolutely ignores the interests of the "used" animals. The concept sets up a relationship between humans and animals wherein animals are "resources" to be "harvested" - their value is judged mainly in financial terms, and a large degree of individual animal suffering is permitted for the financial benefit of humans."* (Hoyt 1994:10)

Examination of HSUS's own published materials make it quite clear that CAMPFIRE's approach is closer to that of the US Administration than that of the HSUS:

> *"The Clinton administration's position on trophy hunting was revealed when the US Secretary for the Interior... told CITES that trophy hunting in Africa provides a valuable source of income to African nations and instills a sense of conservation awareness in the communities where it takes place"* (HSUS 1996:115).

Unless and until HSUS ethics are as sympathetic to human rights as animal rights its position *vis a vis* CAMPFIRE will remain hostile. While HSUS is entitled to the belief that animals have rights which may be more important than conservation or development, HSUS's antagonism to commercial consumptive use of wildlife, and to USAID's support to the CAMPFIRE Program, is based on a set of beliefs not shared with rural Africans — nor with most Americans. HSUS's CAMPFIRE critique attempts to give empirical backing to an animal rights ideology — but the criticisms lack validity as much as their principles lack universality. The ethical issue is subjective and relative, both historically and culturally.

Most seriously, the CCG notes with particular alarm that the information presented by the HSUS with respect to CAMPFIRE and the USAID funding of this program is frequently wrong, incomplete or misleading. Even the total amount of the support to CAMPFIRE

provided by United States Government is inflated in their pamphlet. Since the HSUS is a well funded and staffed, it is hard to avoid the conclusion that this is no accident, but a deliberate attempt at distortion to validate their ethics, with scant regard for the truth or human welfare.

FACTS

1. HSUS accuses agencies from the CAMPFIRE Collaborative Group (CCG) who receive support from USAID of "promoting the resumption of the elephant ivory trade". It is no secret that several CCG members believe that it is important for the international community to examine the possibilities for the reintroduction of a legal and well regulated trade in elephant products. However, the notion that the CCG is focused specifically on ivory is an invention of the HSUS since the CCG position does not involve only ivory, but also other products such as hide. This is not a capricious position but one strongly supported by a range of conservation and development arguments, not least that the CAMPFIRE communities own elephant products which represent a large and moribund asset to some of the poorest communities in the world. There is no legislation, regulation or guideline which inhibits the recipients of US development funding from expressing informed opinions on such issues. Indeed, given the importance of free-speech to the US public, any such restraint would be most surprising. Furthermore, it is notable that at the CITES meeting in Ft. Lauderdale in 1994, the US government itself did not oppose the resumption of trade in elephant hide.

2. HSUS says CCG members lobbied the US Congress to change the ESA to make it easier to import hunting trophies. We suggest that the truth is the reverse. HSUS has consistently lobbied Congress to make CITES-approved importation of trophies under the ESA more restrictive. CCG members, at the request of Congress, provided important evidence to defend CAMPFIRE's interests. This is specifically allowable under the US government's Circular A-122 issued by the Office of Management and Budget to control lobbying by organizations receiving US funding. Members of the CCG have always rigorously adhered to these regulations and, contrary to the HSUS's insinuations, there is no evidence that US funding has been used for illegal lobbying purposes.

3. HSUS correctly says CAMPFIRE makes most of its revenue from trophy hunting. But HSUS is wrong to imply that the elephant is biologically threatened or endangered in Zimbabwe. In fact, Zimbabwe has some 63,000 elephants, with an intrinsic population growth trend over the past 15 years of 2.1% per annum. Trophy quality has been closely monitored and shows that the off-take quotas of trophy bulls are low enough to maintain a high and consistent trophy standard.

4. HSUS says trophy hunting is not as productive as "mass" or "exclusive" tourism. In particular circumstances it may be right. Zimbabwe leaves it to the landowner to choose the production system, and hunting has been the most reliable method of establishing a general base-value for wildlife. In special situations other forms of wildlife tourism can earn more revenue, but it is important to note that "mass" tourism can be more ecologically harmful than trophy hunting.

5. HSUS complains that CAMPFIRE is not economically sustainable, but the very success of CAMPFIRE is that, unlike the vast majority of development programs, it does generate significant income for development and rent for conservation costs. HSUS selectively quotes an evaluation report to support its position, but objective reading of the same report shows that it gave a thorough endorsement of the program and encouraged USAID to increase its support. This provided an objective basis for USAID's ongoing support to which the HSUS objects.

6. HSUS says CAMPFIRE is not biologically sustainable but, although it gives evidence to suggest that biological monitoring could be improved, it provides no evidence in support of this wild claim. CAMPFIRE is continually developing and improving its wildlife monitoring, but the fact remains that more wildlife habitat is under conservation management in communal lands than before CAMPFIRE. There is also firm, independent evidence that wildlife populations, especially of elephants, have not declined under CAMPFIRE. The recent CITES Panel of Experts

reviewed what it referred to as "one of the best elephant data sets in Africa", which included an independent review by world-renowned expert Dr. Iain Douglas-Hamilton of Kenya. The report concluded that over the period 1980-95, Zimbabwe's elephant population showed a growth rate of 2.1%. Thus, after all mortality is taken into account (hunting, culling, natural mortality, poaching, and drought), the population trend has been consistently upward. How can this not be biologically sustainable?

7. HSUS says CAMPFIRE is not socially acceptable, but it is clear that the program can only work on the basis of its acceptability. Since 1989, over half the country's districts have joined the Campfire Association. Well over a thousand democratically elected village wildlife committees have been established, involving over half a million people in an area of over 25,000 km^2. This is not to say there is no conflict or change; quite the reverse. Managing commonly owned resources necessitates deciding cost and benefit flows which requires painstaking consensus-building and conflict resolution. HSUS cannot base the program's social suitability on the observation that at any point in time there are vigorous disputes. Indeed, the CCG would argue that this is one of the indicators of a strong and successful democratization process.

8. HSUS alleges that officials on a seminar tour to the US and Canada undertook illegal lobbying of Congress "to promote the reopening of the African elephant ivory trade". This is a baseless allegation. Not only did no Zimbabwean attend the Congressional hearings, but neither the Endangered Species Act nor the ivory trade were the subject of any presentation. Given that the HSUS attended some of these seminars, and assuming that it would not be so unprofessional as to make such statements without being fully conversant with OMB Circular A-122, we assume that HSUS is aware that this allegation is false. Why, then, has it been made? It seems that HSUS believes that southern Africans should not leave their continent to dialogue with professionals in the US, even when that country is in a development partnership with ourselves. Far from being lobbying, the seminars were open to all, and HSUS and other "animal rights" agencies were personally invited in an attempt to foster understanding.

9. HSUS says that members of the CCG have publicly criticized CITES. This is true. Some members of the CCG believe that CITES has serious shortcomings and wish to see these addressed. In support of this position, the recent review of the Effectiveness of the Convention, partly sponsored by the US government, concluded that 40% of the Parties to the Convention think there are too many species listed. Furthermore, a full one-third of the Parties do not believe that the Convention has been effective at deterring illegal trade. The review also tells us that the Convention has only been effective for two out of 12 of the species it examined! However, it is important to note that the CCG does support CITES — and this extends to representing Africa on the CITES Animals Committee — and is committed to working within the system to ensure it works. Zimbabwe's active role in CITES has been acknowledged by the international community which voted to bring the next Conference of the Parties to Harare in 1997, a move supported by the US government.

10. HSUS says Zimbabwe's Department of National Parks and Wild Life Management (Wildlife Department) is corrupt, chaotic, and under-funded. However, the information it presents originates almost entirely from newspaper articles. Unsurprisingly, its accuracy is poor. It is true that the Wildlife Department is going through a difficult period, not least because it is being restructured from a Department to a Statutory Fund. However, this fact cannot be used as a justification for condemning CAMPFIRE. Even if the HSUS criticism were true, would this not actually justify decentralization of authority for wildlife as in CAMPFIRE? It is clearly one of the strengths of CAMPFIRE that despite upheavals in the Wildlife Department, it has continued to gather strength and wildlife resources have continued to be well managed.

WHAT THE EXPERTS SAY ABOUT CAMPFIRE, ITS SISTER PROGRAMS AND USAID FUNDING

"..... everything I know about the CAMPFIRE programme tells me that it is world class. Its strategy for the sustainable harvesting of elephant populations for the benefit of both the elephants and local people has my full support, and that of my colleagues in conservation biology ..... even the most casual analysis tells one that, in the case of the elephants, the CAMPFIRE programme is on the right side and the HSUS is on the wrong side". **Paul Ehrlich**, Stanford University.

"By allowing people to derive a direct economic benefit through the sustainable utilization of their own resources, the dependence on foreign aid is broken. ..... CAMPFIRE has helped establish that environmental protection and wildlife conservation can help to improve, and are indeed essential to improving, the quality of human life. Therefore in the interest of wildlife, the environment, and people, we urge you not only to maintain your support for CAMPFIRE, but to help expand programs like it in the future". Barbara Bramble, **National Wildlife Federation**

"The only way to save wildlife and wildlands, especially in poverty ridden areas, is to provide human beings with incentives to save nature. Most conservationists have come to accept this. Those who oppose it have yet to come up with an alternative that works. We sincerely hope that as CAMPFIRE matures, certain changes will occur. But to cut the AID funding to CAMPFIRE, will only engender more human poverty and suffering as well as enormous losses of African wildlife and habitat". Mike Wright, **African Wildlife Foundation**

"By working with people on communal lands to take marginal agricultural and grazing lands and turn them to economically productive use, CAMPFIRE attempts to provide people at the local level a better livelihood. Furthermore, by providing land for wildlife outside of reserves and national parks, CAMPFIRE and its sister programs in other countries produce a real conservation benefit." John Robinson, **Wildlife Conservation Society**

"I applaud USAID's support of community based natural resource management programs in Africa, as these programs are vital to conservation of biodiversity. I strongly encourage you to continue to fund these important conservation initiatives". Dr George Rabb, **Chicago Zoological Society**

"Community-based management of natural resources....is proving to be effective in both substantially improving the quality of the lives of the people....and in providing strong incentives for the rural people to conserve the resources..... I applaud USAID's investment in rural community management of renewable natural resources in Africa and strongly endorse continuation of your funding for these important initiatives". David McDowell, **IUCN - The World Conservation Union**

"Through the NRM program, USAID has become a world leader in supporting innovative efforts to understand the complex relationship between conservation and development. Conservationists recognize that without incentives for humans to conserve wildlife and their habitats, animals and the environment will lose. In the interests of wildlife and the people of southern africa, the regional NRM Program deserves continued support". James Leape, **World Wildlife Fund**

"CAMPFIRE has its growing pains. Its successes, however, are many. Given the sorry history of past foreign aid and wildlife conservation in Africa, where little attempt was made to understand local needs and culture and grant local control, CAMPFIRE stands as a model of success. It would be a tragedy to jeopardize programs of this kind simply because HSUS, or any other special interest group, finds them distasteful". Edward Wright, **World Conservation Trust**

CAMPFIRE: THE BASICS

The biggest threat facing African wildlife today is the disappearance of its habitat, which is leading to a drastic reduction in wildlife numbers across the continent. The CAMPFIRE program in Zimbabwe addresses this problem by promoting both conservation of wildlife and human development. Its aim is to ensure that wildlife has an economic value for local people thus providing them with an incentive to share the land with wildlife. The implementation of the CAMPFIRE program is currently supported primarily by the United States Agency for International Development (USAID). Despite the fact that CAMPFIRE is internationally recognized for its conservation and development achievements, animal rights groups in the U.S. are aggressively campaigning to prevent further USAID support because trophy hunting is involved in some areas . This campaign ignores the benefits to individual species, wildlife habitat, and approximately 2 million of Zimbabwe's most poverty stricken populace that have occurred since the beginning of the program.

*** **USAID SUPPORT** - From 1989 - 1994, USAID gave $7.6 million in funding to the program. At that time, four Rural District Councils were involved. USAID has since pledged $20.5 million for the period between 1994 - 1999, to expand the program to a total of 26 of Zimbabwe's 54 districts. Whilst USAID is the primary donor, Germany, the E.U., Japan, the U.K., Norway and the Netherlands have all provided donor assistance to specific geographical districts, bringing total program expenditure over the 10 years from 1989-1999 to approximately $33 million. Drawing upon their experiences with CAMPFIRE, many of these donors are now supporting similar programs in other countries.

*** **HABITAT RECOVERY** - Habitat destruction and degradation have been reversed in many parts of Zimbabwe. **In 1980, 12% of Zimbabwe was devoted to wildlife management, all within officially designated protected areas. Today, 33% of the land is under wildlife management**. The entire increase has occurred outside of protected areas, and has substantially contributed to biodiversity conservation.

*** **WILDLIFE POPULATION INCREASES** - The elephant population in Zimbabwe has **increased from 45,000 in 1980 to 66,000 today and is currently increasing at a rate of 3,000 per year, or 5% of the population**. Many other species, such as the crocodile and buffalo, are also experiencing similar increases.

*** **PEOPLE AFFECTED** - In Zimbabwe alone, **approximately 2 million people are receiving direct financial benefits from CAMPFIRE**, allowing them to move away from their previous position of dependency on aid to a position of self-reliance. The success of the program is now being replicated elsewhere with similar initiatives in Botswana, Namibia, Malawi and Zambia. South Africa, Mozambique, Kenya, Cameroon and Uganda are currently implementing pilot programs along CAMPFIRE principles. These similar initiatives are enabling many millions of people other than the direct beneficiaries of the USAID CAMPFIRE grant to achieve self-reliance

*** **SUPPORT OF US CONSERVATION COMMUNITY** - Many of the leading conservation agencies in the United States have written strong letters of support to USAID for their continued support of CAMPFIRE. These include, but are not limited to, the World Wildlife Fund **(WWF)**, the National Wildlife Federation **(NWF)**, the African Wildlife Foundation **(AWF)**, Biodiversity Action Network, the Wildlife Conservation Society **(WCS)**, the International Union for the Conservation of Nature **(IUCN)**, **Paul Ehrlich** of Stanford University, Safari Club International **(SCI)** and the Chicago Zoological Society/Brookfield Zoo. Letters have also been received from representatives of the development and biomedical communities.

***WHAT THE MEDIA SAYS - CAMPFIRE has generated considerable international media interest with positive reports appearing in **Newsweek, US News and World Report, the Economist and the Wall Street Journal**, to name but a few.

World Conservation Trust - IWMC

March 13, 1997

Congressman James Saxton, Chairman
Subcommittee on Fisheries, Conservation,
Wildlife & Oceans
Resources Committee
U.S. House of Representatives
1324 Longworth House Office Building
Washington, DC 20515

RE: H.R. 39-African Elephant Conservation Reauthorization Act of 1997

Dear Chairman Saxton:

As the former Secretary-General of the Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES), I am fully aware of the financial contribution the United States the has made in supporting conservation programs for the African elephant. This much needed funding has been generally applied wisely and assisted successful projects in seventeen (17) range states on the continent of Africa. Therefore, the World Conservation Trust strongly supports the legislation pending before this Committee.

I would, however, offer the observation that appropriate use of these funds must consider both the needs and benefit to the renewable species and people. Professional wildlife and marine resource management has demonstrated that complete protectionism of a renewable resource is not always appropriate or beneficial to the species or people. Consideration of the needs of people and the species must be part of any true conservation effort. Conservation by its very definition means "wise use" and embodies the concept of sustainable use.

The commercial use of the conservation by-products of elephant parts and products will be major issue before at the 10th Meeting of the

Switzerland-Head Office
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Fax + same as telephone
Email hlapointe@pingnet.ch

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Fax + same as telephone

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1101 30th Street NW
Suite 500
Washington, DC 20007-3708
Tel + 1.202.625.8340
Fax + 1.202.625.4363
Email WCTrust@aol.com

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1127 King Arthur Court
Unit 303
Dunedin, FL 34698
Tel + 1.813.734.4949
Fax + same as telephone

Canada
271 Boul. de Cannes
App 2
Gatineau, PQ J8T 8C5
Tel + 1.613.783.7238
Fax + 1.819.568.4983
Email barslow@inexpress.net

World Conservation Trust - IWMC

Conference of the Parties to CITES in Zimbabwe in June 1997. Permitting controlled trade will, not only generate funds for conservation programs, but provide much needed economic benefit to the people. Total trade restrictions are not a means that promotes sustainable development or insuring the appropriate conservation of the species. History has demonstrated this fact many times throughout the world.

Mr. Chairman, The World Conservation Trust-IWMC strongly supports the legislation before your Subcommittee. We would caution, however, that the use of such funds to promote only efforts that do not consider sustainable use as an appropriate and beneficial conservation program for the African elephant, and the people in the range states where it will be used, would not the best utilization of such needed financial resources.

Sincerely,

Eugene Lapointe
President

March 11, 1997

The Honorable Jim Saxton, Chairman
Subcommittee on Fisheries Conservation,
Wildlife and Oceans
U.S. House of Representatives
Washington, DC 20515

Dear Congressman Saxton:

Pursuant to the truth and testimony act, I am providing the following information on Federal Grants received by Zoo Atlanta:

1. Institute of Museum Services 1995 - $112,500 - 1996
General Operating Support

2. National Science Foundation grants received Morehouse College/Zoo Atlanta
1994 - $31,000 - 1995 - $44,000
To support minority undergraduate research program in conservation, biology and animal behavior.

3. National Fish & Wildlife Foundation - $250,000 grant pledged 1993*
* (paid through 1997)
To support construction of the Conservation Action Resource Center.

4. U.S. Fish & Wildlife Service Cooperative Agreement- $90,000 awarded 1993 rcvd March 1995 - To support construction of new Education animal holding facility.

5. U.S. Fish & Wildlife Service Cooperative Agreement - $20,000 awarded 1994
To support curriculum development of programs to be used as part of partnership.

6. U.S. Fish & Wildlife Service Cooperative Agreement - $40,000 awarded 1995
To support participation of underprivileged urban audiences in zoo education programs.

Sharing The Joy And Wonder Of Wildlife
800 Cherokee Avenue, S.E., Atlanta, Georgia 30315-1440
(404) 624-5600 Facsimile (404) 627-7514

AZA
American Zoo and Aquarium Association

7. U.S. Fish & Wildlife Service Cooperative Agreement - $7,000 awarded 1995
To support the development of CD-ROMs for use in USFWS GSAMS (Georgia Statewide Academic Medical System) distance learning programs.

8. Institute of Museum Services - $1,975 - 1/3/95 - 1/2/96
To support participation in the Museum Assessment Program (MAP).

Respectfully submitted,

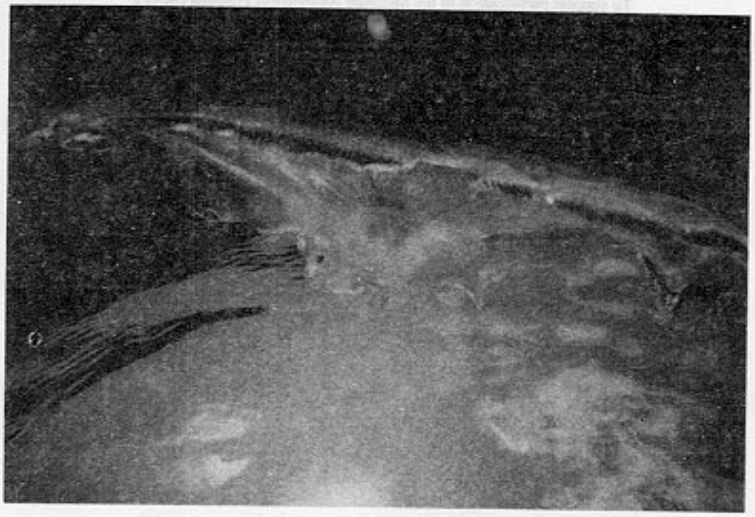
Terry L. Maple, Ph.D.
President and Chief Executive Officer

/gk

Attachment: Curriculum Vitae

REEF RELIEF

photomonitoring



Key West , Florida

REEF RELIEF

photomonitoring

Key West , Florida

REEF RELIEF appreciates the opportunity to present these images of coral disease observed at North America's only living coral reef.

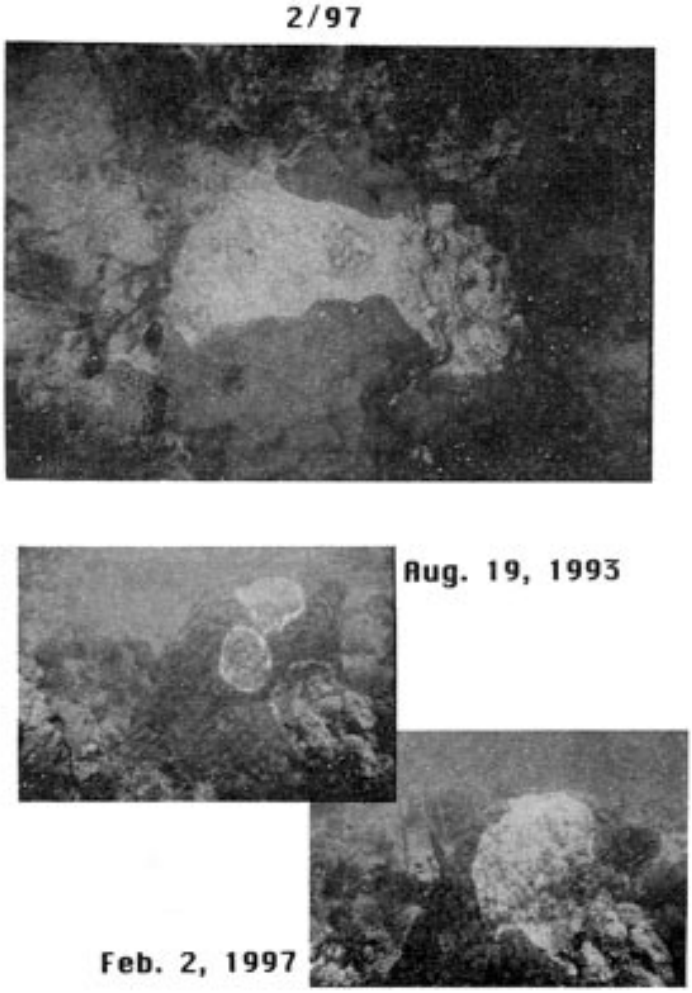
by Craig Quirolo
Director of Marine Projects
REEF RELIEF
March, 1997

REEF RELIEFS

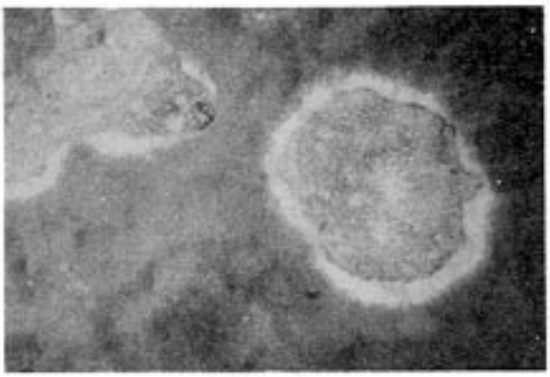
CORAL MONITORING

SAND KEY

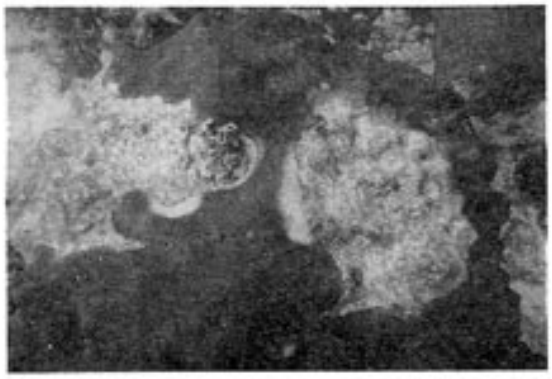
SIX MILES SOUTH OF KEY WEST


2/97
Aug. 19, 1993
Feb. 2, 1997

Yellow band disease



9/93



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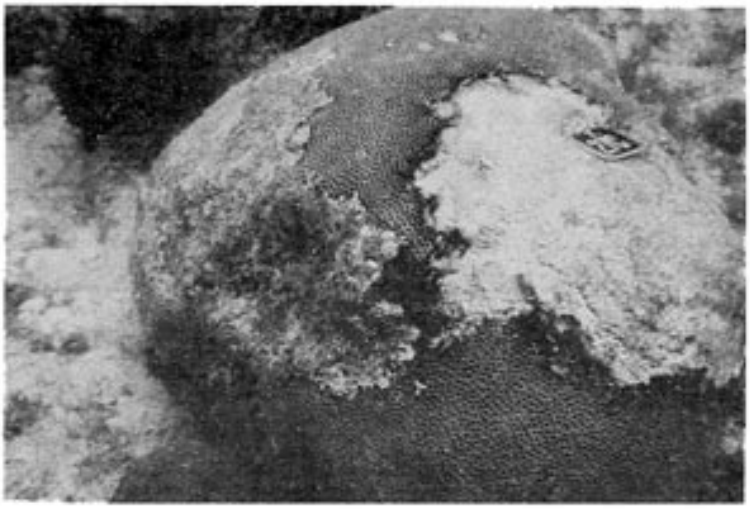
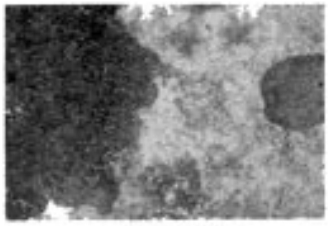


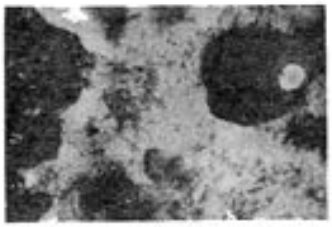
In the Key West area hundreds of coral colonies have been lost to Black-Band disease.

BLACK BAND DISEASE



7/29/93

6/3/94



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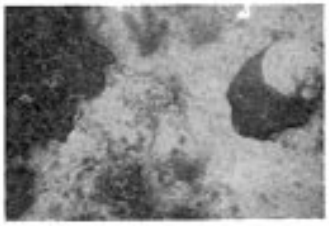


12/30/94

7/30/96

2/2/97

Many of our boulder corals in the Key West area are succumbing to various diseases . Besides black band disease this brain coral lost the coral polyps around its base to what appears to be "white plague type II".

PILLAR CORALS ARE LOSING
THEIR BATTLE FOR SURVIVAL

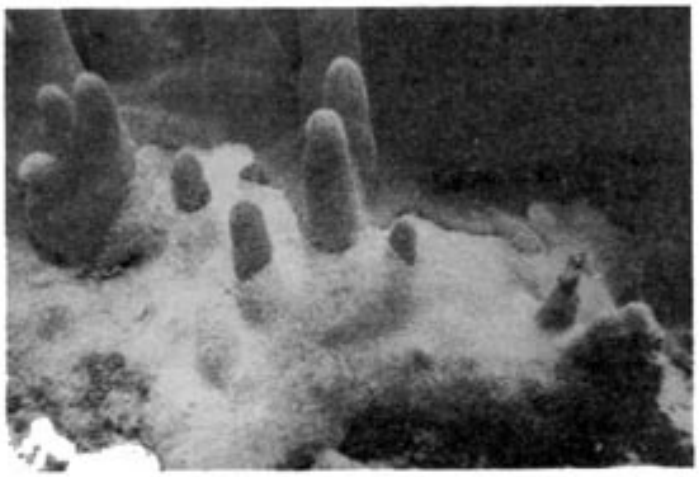
THIS ONCE WAS THE SOUTHERNMOST
PILLAR CORALS IN
FLORIDA

JAN. 2, 1994

FEB. 2, 1997

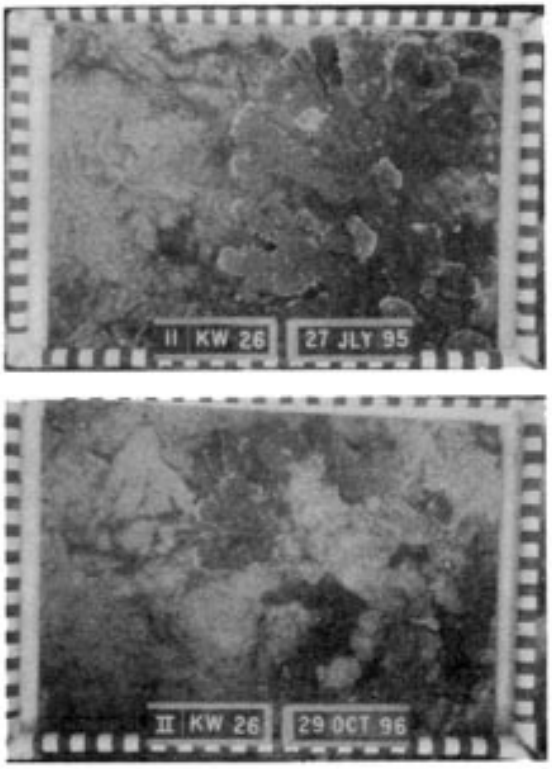
WHITE PLAGUE TYPE II

A NOT SO COMMON CORAL DISEASE



JULY 30 1996
SAND KEY

WHITE POX
A NEW DISEASE
IN THE KEYS



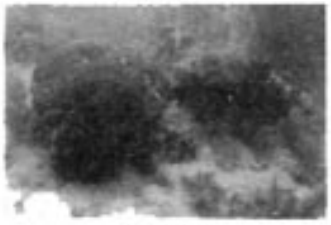
DR. JAMES PORTERs
photomonitoring station
Eastern Dry Rocks
KEY WEST, Florida.

SEA FANS ARE ALSO
LOSING GROUND TO STRANGE
DISEASES

Sea Fan #1
Sand Key buoy 10

7/29/93

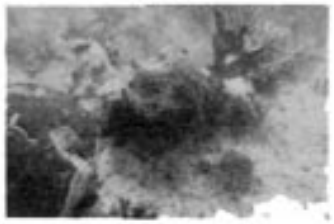
5/28/94



6/5/94

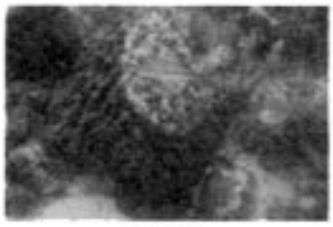
9/6/94

5/22/95



4/9/96

Sea Fan #3
Sand Key buoy 10



6/3/94

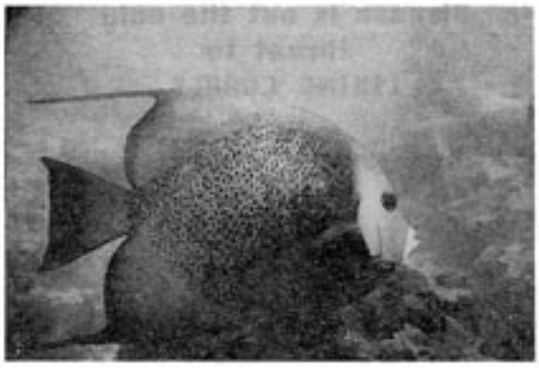
12/30/94

3/22/95

5/95

5/26/95

4/5/96



IF THIS WAS YOUR FISH TANK
I'd say "change the water"

REEF RELIEF
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visit our website: www.reefrelief.org